GROUND GRAIN VS. WHOLE GRAIN FOR CHICKS AND CAPONS.

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† Connected with Fertilizer Control.
Popular Edition*

of

Bulletin No. 126.

GROUND GRAIN VS. WHOLE GRAIN FOR CHICKS AND CAPONS.

F. H. HALL.

The poultryman will, almost of necessity, feed his fowls rations composed mainly of the common 
limits of poultry rations. The points he must consider in the 
economical feeding of his stock are the particular 
kinds and proportions of grain to be used, the 
proper adjustment of green food and animal matter in the rations, 
and the manner and form in which the grain is to be presented 
to the flock. Information upon the latter point has been obtained 
through experiments made at this Station in feeding whole and 
ground grains to young chicks and to capons.

Generally changing from whole grain rations to 
wide and narrow ratios. Those composed mainly of ground grain involves 
considerable alteration in the chemical composition of the food. Whole grains contain a large 
percentage of starch and other carbonaceous matters, making them of wide, nutritive ratio; but in compounding ground grain mixtures, some of the readily available, cheap, 
nitrogenous by-products are usually added and the nutritive ratio is narrowed.

*This is a brief review of Bulletin No. 126 of this Station on Feeding Experiments with Chicks and Capons: The Relative Efficiency of Whole and Ground Grains as Commonly Fed, by W. P. Wheeler. Anyone specially interested in the detailed account of the investigations will be furnished, upon application, with a copy of the complete Bulletin.
In these tests the influence of the form of the grain was to be considered, associated with such differences in composition as would naturally occur in using the ordinary foods. Exact correspondence in ratios could not be obtained without preventing the use of many common materials; but the differences in nutritive ratio were less than usually occur.

The chicks, 22 in each lot, were hatched in incubators and reared in out-door lamp-brooders, each surrounded by a small grass run. The contrasted feeding was begun at birth and the records were kept for three months. During the entire time all the chicks remained healthy and made satisfactory growth. Lot I received all its grain finely ground, the basis of the ration being a mixture of two parts by weight of corn meal, two parts wheat bran and one part each of wheat middlings, old process linseed meal and ground oats. This was supplemented by skim milk, dried blood and additional amounts daily of corn meal and ground oats. The grain fed to Lot II was either whole or cracked and consisted of oats, wheat, corn and barley. Skim milk, fresh-cut bone and dried blood were fed in addition to narrow the nutritive ratio, but the amount of animal food consumed by this lot was not quite sufficient to equalize the rations. The average ratios for the entire period were 1:3.3 for Lot I, and 1:4.6 for Lot II.

The principal data showing the average results of the test are given in the table below, the cost being based upon the current prices for the season (1896) of the foods used.
FIG. 1—The First Day Outdoors.

FIG. 2—Capons from Experiment Pens, 1896.
Plate II—Capons Dressed for Market.
GAIN AND COST OF GAIN OF CHICKS FED GROUND GRAIN OR WHOLE GRAIN.

<table>
<thead>
<tr>
<th></th>
<th>Ground grain</th>
<th>Whole grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight per chick at 12 weeks</td>
<td>2.9 lbs.</td>
<td>2.6 lbs.</td>
</tr>
<tr>
<td>Cost* per chick at 12 weeks</td>
<td>15.3 cts.</td>
<td>15.00 cts.</td>
</tr>
<tr>
<td>Cost of food for 1 pound gain</td>
<td>3.33 cts.</td>
<td>3.76 cts.</td>
</tr>
<tr>
<td>Cost for food and heating brooders for 1 pound gain</td>
<td>3.98 cts.</td>
<td>4.5 cts.</td>
</tr>
<tr>
<td>Cost of food per chick to weight of 1 pound</td>
<td>3.00 cts.</td>
<td>3.7 cts.</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; &quot; &quot; 1.5 pounds</td>
<td>4.9 cts.</td>
<td>5.8 cts.</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; &quot; &quot; 2</td>
<td>7.2 cts.</td>
<td>7.3 cts.</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; &quot; 2.5</td>
<td>8.6 cts.</td>
<td>9.0 cts.</td>
</tr>
<tr>
<td>Time required to reach 1 pound weight</td>
<td>6 weeks</td>
<td>7 weeks</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; 2 pounds</td>
<td>10 weeks</td>
<td>10 1/2 weeks</td>
</tr>
<tr>
<td>Dry matter in food for 1 pound gain</td>
<td>4.56 lbs.</td>
<td>4.4 lbs.</td>
</tr>
</tbody>
</table>

* Includes cost of hatching, cull for brooders, and food only.

This table shows clearly the superiority of the ground grain ration for feeding chicks. On this feed the chicks ate a little more for each pound of gain (as shown by the last line), but it was of less expensive materials; they grew more rapidly; reached a given weight more quickly; and cost less per pound of gain than did those receiving their grain whole.

The cockerels among these chicks were then **Caponizing**. Caponized and fed these contrasted rations during the winter, 12 capons in each lot being fed for 4 months and 8 continued nearly 7 months. The caponizing caused a small temporary loss of less than 11 per cent, due to the necessary fasting and the operation itself, but otherwise affected none of the birds injuriously.

The grain mixture previously fed the chicks was changed to make it somewhat more fattening, and now consisted of ten parts by weight of corn meal, two parts wheat bran, and one part each of wheat middlings, ground oats, and ground barley; with the same supplementary foods as before. Oats were omitted from the whole grain ration; otherwise the food for this lot contained the same grains as when they were chicks. No loss whatever occurred from disease in either lot and both made rapid gains in flesh for four months. After that time the increase in weight was
slow and at rapidly increasing cost per pound, owing to the maturity of the birds.

**Results.** In the first 4 months Lot II, on whole grain, gained 1 pound in weight for every 6.0 pounds of dry matter consumed, and cost 6.9 cents per pound; while Lot I, on ground grain, required 6.5 pounds of dry matter and cost 7.2 cents for each pound of gain. In 6 months Lot II gained 1 pound upon 7.45 pounds of dry matter consumed and at a cost of 8.3 cents; while Lot I consumed 8.06 pounds of dry matter and cost 8.6 cents. Thus the capons upon whole grain made gains upon less food and at less cost than those upon ground grain; but the birds were not of equal size at commencement of feeding, although of equal age. Those fed as chicks upon ground grain were larger when caponized and this difference continued until the capons were fully grown, the average weights of 10 pounds and 11 pounds being attained much sooner by the lot on ground grain.

Considering the total cost of food from hatching, the average bird receiving the ground grain had cost 35.5 cents at 5 months of age; and weighed 8.1 pounds, thus costing 4.38 cents per pound. Those fed whole grain weighed 7.5 pounds and had cost 34 cents or 4.53 cents per pound. At 6½ months Lot I had cost 5.4 cents a pound for an average weight of 10 pounds and Lot II 5.49 cents per pound for a weight of 9.5 pounds.

Two other lots of capons from chicks raised by hens and treated alike until caponized were fed these contrasted rations for about 5 months. The capons of the two lots were of the same age and weight at the beginning of the test, and thus afforded a fairer comparison of the two forms of feeding than did the two lots of equal age but of unequal size.

During the entire period the lot on ground grain did the better, making a gain of 1 pound for every 8.3 pounds of water-free food consumed as contrasted with 10.1 pounds for the lot on whole grain. During the first 11 weeks of the test, when satisfactory gains were made, 6.8 pounds of water-free food costing 7.2 cents were required for 1
pound gain by the ground grain lot and 6.9 pounds of dry matter costing 7.8 cents by the birds fed whole grain. After this time the gains were very slow and about equal for the two lots.

The ground grain ration proved considerably more profitable than the whole grain ration with the growing chicks; and the same was true of capons of equal weight from these chicks and from others of equal weight and age fed alike before caponizing. No difference was noticed in health or vigor of chicks or capons fed either ration, but all made good gains and returned a fair margin of profit at the ordinary prices.