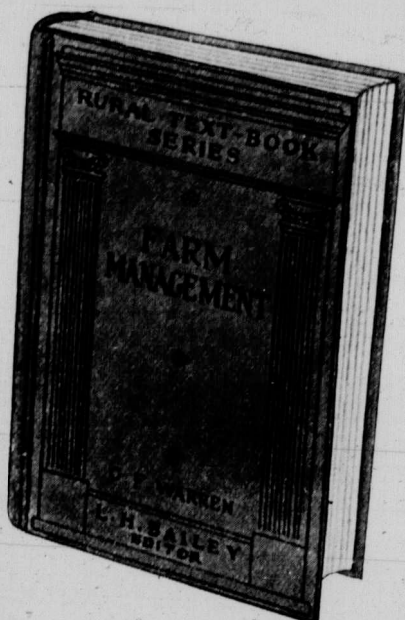


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Poultry

EGG LAYING ABILITY INHERITED

It is a well-established fact that there is a great difference in egg production among various breeds of poultry. The great majority of people who have raised poultry have realized that some breeds will lay better than others. More observant poultry raisers have found that there are differences within strains of the same breed. They have found, for instance, that one strain of Barred Plymouth Rocks will lay better than another strain of the same breed. The same will apply to Leghorns and any other breed of poultry. Hence, we appreciate the fact that strain is of more importance than breed.

Mass Selection

Considerable work from a scientific standpoint has been conducted in regard to breeding for increased egg production. Progress along this line is not as substantial as might be expected. Nevertheless, the data obtained is of great importance in the breeding of poultry. The original policy in breeding for increased egg production was to select the heaviest layers for breeding purposes. This line of work was termed "mass selection," but after eleven years of this method of breeding the egg production had actually decreased below that with which it had started. It was found, therefore, that "mass selection" was not improving egg laying capacities. The data clearly showed that the daughters had not always inherited the egg-laying ability of their mothers. Following the results of this work, poultry breeders began to look for a cause, and the general tendency was to ascribe the failure of the "mass selection" method to lack of constitutional vigor. Notwithstanding the fact that heavy laying may be a more or less common character, it was found that the vitality of 200-egg hens was so materially affected that, in the majority of cases, they were not able to produce daughters possessing normal vigor. Also it was found that the daughters of 200-egg hens were usually poor layers. It was supposed, therefore, that a 200-egg hen was an abnormal product. In a certain sense this is true, for more advanced work in poultry breeding has established the fact that heavy egg production is not inherited from the dam, but is inherited from the sire. A heavy egg layer is one which has a good egg record for the entire year, but which lays at least 30 eggs during the winter months, that is, during the winter season from October 1 to March 1. Any hen which does not produce 30 eggs during that time is classified as an average or a poor producer. Practically all breeding work is based on the selection of breeders from the standpoint of their winter production. This factor is of economic importance, because we find that winter egg production is the most profitable phase of our poultry industry, and it should be the aim of everyone who is keeping fowls to secure the largest possible winter production.

Depends on Sire

In brief, the results of the more advanced work in breeding for increased egg production show the following facts:—

That heavy egg-laying ability may be inherited by daughters from their sire regardless of the egg laying qualities of the dam. This is shown in the results obtained in breeding the same sire to different dams, the result being that many daughters of the poor laying dams make good layers as well as do many daughters of the good laying dams. That is, the proportion of daughters which inherit heavy egg laying ability is dependent upon the sire.

In the second place, it was shown that heavy egg laying ability is not inherited by daughters from their dam. This is shown from the fact that continued selection of heavy laying dams does not affect in any way the heavy egg production of the daughters. Moreover, the proportion of heavy laying daughters is the same whether the dam is of high or of low egg laying ability, provided both are mated to the same male. This is equivalent to proving the influence of the sire in increased egg production.

Lastly, the daughters of a heavy laying dam may show either high or low egg laying ability, depending upon their sire.

Results

The results of these experiments conducted in breeding poultry have

been of immense benefit as well as high interest. Briefly, these results may be explained from the fact that heavy egg production follows a different course of inheritance from average egg production. The inheritance of egg laying ability depends upon three factors: A hen must have a normal ovary, else she cannot produce eggs. Having a normal ovary, she must first possess the factor of normal egg production, that is, she must be able to lay approximately 150 to 180 eggs in the year, although she may lay comparatively few of them during the winter months. The third factor entering into the inheritance of egg laying ability is the factor for excess egg production. This factor simply means that the hen must lay 30 or more eggs during the winter season, as intimated previously. Now the factor for normal egg production is inherited in the ordinary Mendelian fashion, that is, a pullet may inherit the normal egg-laying factor from either the dam or the sire, or both. If she possesses this factor inherited from either or both parents, she will be a normal layer. On the other hand, the factor for excess egg production is inherited in a different way than the factor for normal egg production. The results of breeding experiments in many different lines have shown that sex is an inherent quality, and moreover it was found that the factor for excess egg production is sex limited and is borne by the male bird only. Therefore, in breeding for heavy egg production in pullets, male birds must be used which possess the excess egg production factor. That is why so much attention is now given to the proper selection of cockerels in breeding work. Breeders now assume that the greatest improvement can come only thru the selection of bred-to-lay cockerels. At the same time, however, sufficient attention must be given to the female side of the breeding stock to insure the maintenance of constitutional vigor and vitality.

The interpretation of these results may be slightly beyond the grasp of the average poultryman and farmer, but doubtless a few suggestions can be made which will be of considerable value. It should first be stated that great attention should be paid to constitutional vigor and vitality, for in the long run, egg production largely depends upon the health of the hen. If one is to obtain the best results, no bird should be used as a breeder which has ever been ill. In the second place, careful observation of the flock from day to day should enable one to select the best producers among the females in order that they may be used as breeders to obtain suitable cockerels for breeding purposes. It is not practicable for the average farmer or poultryman to practice trap-nesting, but one should be able to make considerable improvement thru the study of his fowls. It might also be suggested that too much out-breeding should not be done, as the securing of new stock from different parties from year to year is liable to affect the egg laying quality of the present strain.

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