

If incubators are used the problem is simple. Keep the chicks entirely separate from the old fowls and on clean ground only, and as they grow up dispose of the old flock to the best advantage possible, again thoroughly disinfecting the houses and runs used by the old flock. If hens are depended on for hatching, the chicks should be taken away as soon as hatched to artificial brooders and raised as already suggested, entirely separate from the old flock. Precautions should also be taken to prevent the possible infection of the fowls from bovine sources by the feeding of offal from slaughtered tubercular cattle or hogs, or from human sources by picking up sputum carelessly expectorated onto the ground by consumptive persons.

Care should also be taken in buying new stock to secure birds only from flocks that are known to be free from disease. An additional preventive is to increase and maintain the natural vigor of the fowls by care in breeding and feeding, and housing in open air houses.

S. F. EDWARDS.

FEEDING FOR EGG PRODUCTION.

You are so familiar with the general foods, rations, and principles involved in balancing rations and feeding for egg production that a general or extensive discussion of this subject would be unnecessary on this program. I will confine myself, therefore, to certain conditions and practices, the importance of which is often given but slight consideration by poultrymen who are feeding for egg production. I must admit at the outset that these opinions are based upon observations rather than upon experiments.

There seems to be no one "best ration," for we find different feeders getting satisfactory results from rations composed of very different proportions of the same or different feeds. Generally these rations vary in their nutritive ratio, but not so much in this respect as in the kind and amount of the different feeds. Because of the good results from rations unlike in the amount of various feeds used, it seems quite feasible to advise the use of economical foods in as large proportion as the balancing of the ration according to its nutrients will allow. In plain words, wheat or oats need not necessarily be used in large proportions when their cost greatly exceeds that of corn, buckwheat or other local grains. It is well to use small amounts of the more expensive feeds for the sake of giving variety, but it is rarely necessary to use amounts in excess of that needed for variety.

A ration for laying fowls should contain a large amount of mineral food. Meat scrap usually contains a high percentage of

mineral matter but seldom enough to supply the needs of the laying hen. Oyster shells and sometimes grit contain a large amount of lime but usually a very small amount of other available mineral foods. In most rations there is a lack of tri-calcium phosphate, which is important in bone building. Bone meal contains a high proportion of this mineral, and unless the ration has a large amount of meat scrap, which in itself contains a high percentage of ground bone, this material should be added to the ration in the proportion of about 2 per cent. of the mash ration.

Meat, because of its high percentage of protein, is undoubtedly one of the most, if not the most important, food in the ration. A few extra pounds of it will often balance a bulky, unproductive ration. It should be used with the greatest care, for a too liberal portion will force fowls beyond their physical endurance. Meat scrap of only the better grades should be used. The poorer grades contain too large a percentage of undesirable matter and are frequently preserved with injurious materials. Several cases of poisoning by meat scrap have been brought to our attention this past winter.

In determining whether or not a certain ration is a forcing ration it is necessary to consider the following factors: the physical condition of the fowls, the relative proportion of grain and mash consumed, whether the fowls are confined or have free range, and whether the eggs are to be marketed or used for hatching. A ration which under one condition may not be considered forcing, under the opposite conditions might be very forcing. For instance, a mash containing 30 per cent. of 50 per cent. protein meat scrap would be a forcing ration for hens whose eggs were to be used for hatching. This is allowing free range and one-half as high consumption of the mash as of the grain ration. Eggs from these fowls would not have a high hatching power. This same proportion of meat scrap, however, could be given to market egg producing hens without seriously impairing their health.

But a ration so rich has an undesirable tendency to force an early molt. It would be wise, therefore, to gradually lessen the proportion of meat food as the natural laying season advances, providing enough meat so that the hen will continue to lay heavily through a prolonged laying period, but not enough meat to force her into an early molt and consequently shorten her laying period. If fowls are made to work diligently and exercise a great deal, they can be given a much richer ration without suffering any evil from it.

During the molting period a large amount of protein and oil are needed for the grow-

(Continued on page 45, col. 2.)

Editorial

An organization of individuals and institutions primarily engaged in instruction, investigation and extension in poultry husbandry.

Publication Committee.

W. F. KIRKPATRICK.

RAYMOND PEARL.

JAMES E. RICE.

Editor.

HARRY R. LEWIS,

New Brunswick, N. J.

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The following suggestion comes from Prof. F. S. Jacoby of the Ohio State University, and seems to the Editor very pertinent: "Will you, through the columns of your paper, notify each of the members of the association to see to it that all other members obtain the publications of the departments they are connected with? Every week I receive several letters from members of various poultry departments asking for our literature, and I am also constantly writing letters to them asking for their literature.

"It seems to me it would be a matter of professional courtesy if every member would personally see that the other members obtained their publications. In this way we would all be posted regarding the other fellow's work. If you will make this appeal through the paper, I believe it will meet with the co-operation of the members."

The Editor would suggest that each member enter the official list of members of this association, which will be found on page 6 of our Journal, on the regular mailing list of their Station for all publications pertaining to poultry and of an allied nature. This matter could be easily done, and would be to the mutual benefit of every member so concerned.

The June number of our Journal will be devoted entirely to the publication of foreign papers. Many of them are of special value, and will no doubt be looked forward to with interest by our members as well as by subscribers.

Do not forget the news items.

(Continued from page 44.)

ing feathers. The ration may contain a large amount of these ingredients in the form of linseed oil meal and sunflower seed.

In warm weather the digestion is liable to be very sluggish. Therefore it becomes necessary to provide the most cooling and nourishing rations at this season of the year. During the hot weather the wet mash undoubtedly produces better results than the dry mash, especially if it is mixed with buttermilk and contains some fattening meals such as oat flour and buckwheat middlings. In case a dry mash has been given all winter it should be continued through the summer. The wet mash can be given in addition.

Ordinarily when feeding small flocks, the best results can be obtained by using a wet mash. An amount of grain is then given in proportion to the appetite of the fowl rather than by measure. When fowls are kept in large flocks this practice is not so feasible. There is greater danger of the strong ones crowding out the weak ones when fed a wet mash. The dry mash overcomes this condition and allows every fowl to obtain as much food as needed each day. If there is danger of their getting more than they need the hoppers can be closed during a part of the day. For the most part the grain can be apportioned by measure. The amount should be varied occasionally according to the appetite of the fowls.

The principles of balancing a ration apply to all breeds of fowls in the same way. It is not necessary to change materially the ingredients of a ration for fowls of different size and temperament. But it does become necessary to alter the method of feeding and the amount given to the different types of fowls in order to apply the principles of feeding in regard to exercise and health.

Although it is a general custom to feed the same ration (unchanged) for the whole year, I desire to express, in conclusion, the opinion that the careful feeder can well afford to vary the ingredients of the ration and even the method of feeding according to the season of the year and the condition of the fowls. Of course, no radical change should be made at any time, but always a gradual change to meet the needs of the hen's physical condition as it changes from egg production into feather production or reproduction and as it is influenced by cold or hot weather.

C. A. ROGERS.

A POULTRY SURVEY OF THE CITY OF ITHACA.

In the summer and fall of 1913, a house to house canvass was made of the city of Ithaca in order to determine the production and consumption of poultry and eggs