

have a flock of large hens, under two years of age, he might begin by placing a vigorous Plymouth Rock or Dorking cockerel with them. In some cases both breeds might be kept. The foregoing remarks apply more particularly to the Plymouth Rock as a fowl for market, as egg producers the females under two years of age have been found excellent, making a creditable showing against an equal number of White Leghorns and Wyandottes, three winters ago. Taken altogether, they are the best all round fowl the farmer can breed at present, and while saying so we do not wish to say anything against the strong claims put forth for the Dorking. Our object is to impress upon the farmers the necessity of breeding better stock for the market; to beg him to remember that it is no more trouble to feed a pair of chicks that will make eight pounds than a pair of culls that will weigh only half the figures named.

SOMETHING ABOUT FATTENING CHICKENS AND OLD HENS.

The proper care and food for the young chicks have been both remarked on at length in the article of last month. It may be necessary, in order to get the young cockerels into prime condition for market, to confine them for a few days previous to killing them or taking them to market, feeding liberally meanwhile of such food as will put on flesh quickly. Previous to killing, the fowl should not be fed for twelve or twenty four hours, the object being to prevent quick decomposition of the contents of the crop. A good fattening ration can be made of shorts, cornmeal or ground barley with the table-scraps, bits of meal, &c., &c., mixed up with any spare milk, or, when milk is scarce, hot water. Clean water should be before them all the time. The writer has never had any trouble in getting all the flesh he wanted on the cockerels for table use by simply feeding generously and keeping them closed up for some days. In the case of the Plymouth Rock hens over two years of age the difficulty was to keep them from getting too fat. In certain quarters there is a prejudice against old hens for table use on the ground that they are so tough. When a hen is four or five years of age she is very likely to be tough eating, but take a Plymouth Rock hen of two or three years of age and let it boil gently for several hours, then roast, and if it is properly cooked and well stuffed it will make good tender eating. A poultry breeder of some note once remarked to the writer: "Some people are under the impression that an old hen is not good eating, but I prefer a properly stuffed, well cooked hen to chicken, for it has a more pronounced taste." I remarked that at home we always found an old Plymouth Rock hen good eating but that it was hard to combat the prejudice against the old hen. "That," said my friend "is the result of not knowing how to cook them." And he was right. (Ed.) However, there are many old hens bought for and eaten as chickens every day and no one is the wiser. Should the hen not be properly dressed and cooked, it is put down as an "old chick" or an "antiquated rooster." But the farmer need not exercise himself about the fate of his old hens, he will find a ready market for well fed, plump chickens, and a superior class of customers willing to pay a good price for a superior article. We shall have something to say again as to market prices.

Ottawa, 11th Oct. 1893.

POULTRY.

ATTENTION has often been called to the neglect of poultry by English farmers. Why, it is often asked, should we pay more than £4,000,000 a year to foreign producers of eggs and poultry when our own farmers might easily supply the whole of the demand? We are told in reply that poultry-keeping does not pay. This is probably the case when there is very little knowledge of the principles which should guide the poultry farmer, and but little care is taken with the practical details of the work. On many farms the breed of fowls has been allowed to deteriorate by perpetual in-breeding. The birds are kept when they are beyond the age of profitable production. The winter production of eggs, and the rearing of early spring chickens, so that the highest prices may be realised in each case, are not made the subject of careful study. Rats are often allowed to derive the chief benefit from the poultry flock.

Scientific information on the subject of poultry is as yet but scanty. The German investigators, from whom we generally obtain our most abundant supplies of knowledge, have not occupied themselves with the subject; our accurate information comes at present chiefly from France and Belgium. An excellent beginning has, however, been made in Canada. The Experimental Farm at Ottawa, under the Minister of Agriculture, has had for several years an efficient poultry department, the object of which is to ascertain the best breeds and methods of work, to spread information among the Canadian farmers, and supply them with settings of eggs of the superior breeds. When will an English department of agriculture undertake such useful work? We shall have further to notice, by and by, a few investigations on poultry, carried out at two of the American experiment stations.

A laying hen is, in proportion to its weight, one of the largest producers of saleable products on the farm, exceeding in this respect even the cow. M. G. Gillekens has compiled a table showing the number and weight of eggs produced annually by a hen of each of the best breeds employed in Belgium. The two breeds giving the largest number of eggs are the Campino and Hamburg; these produce respectively 225 and 200 per hen, per annum, corresponding to 6.45 and 6.40 times the live weight of the hen. The Leghorn and Spanish come next with 190 and 155 eggs, but these are of larger size than those just mentioned; they amount to 5.51 and 4.22 times the hen's weight. The smallest egg-producers in proportion to their weight are the Dorking and Langshan breeds; these produce annually 120 eggs, the weights of which are in the proportion of 2.64 and 2.24 to the live weight of the hen. It thus appears that the best egg-producing breeds will furnish at least five or six times their own weight of eggs in the course of a year, the year chosen being, of course, the one of greatest production—that is, the second year in a hen's life.

The average weight of a hen's egg is about 2 oz. Of this, 10—1 per cent. is shell, having a thin lining membrane. About 95 per cent. of the shell is carbonate of lime. The white and yolk, which form the contents, have a very different composition, as will be seen from the following figures:—

	White.	Yolk.
Water.....	85.4	50.6
Nitrogenous Substance...	12.9	16.1
Fat	0.3	31.4
Other non-nitrogenous Matters.....	0.8	0.5
Ash.....	0.6	1.4
	100.0	100.0

The yolk is thus much drier than the white, and is especially characterised by containing a very large amount of fatty matter.

The total amount of ash constituents in the contents of an egg is but small, but they are of vital importance, as from them all the inorganic material required to construct the body of the chick must be supplied. The ash of the white and yolk are quite different in composition: 100 parts of each contain as follows:—

	White.	Yolk.
Potash.....	31.4	9.3
Soda.....	31.6	5.9
Lime.....	2.8	13.5
Magnesia.....	2.8	2.1
Oxide of Iron.....	.6	1.7
Phosphoric Acid.....	4.4	65.5
Sulphuric Acid.....	2.1	
Silica.....	1.1	.9
Chlorine.....	28.8	1.9

The white is thus rich in the alkalies, potash and soda, a part of the latter being apparently present as common salt. The yolk is extraordinarily rich in phosphoric acid; it contains also much more lime than the white. It is, in fact, the part of the egg which contributes most to the formation of bone.

1,000 lb. of hen's eggs, shells included, contain, of the most important constituents, the following quantities:

Nitrogen	Potash	Soda	Lime	Magnesia	Phosphoric Acid
lb.	lb.	lb.	lb.	lb.	lb.
20.00	175	159	60.22	1.09	4.22

The largest ingredients in eggs are thus lime, nitrogen, and phosphoric acid: these are fundamental facts to be borne in mind when arranging the diet of a laying hen.

We have already stated that a laying hen is, in proportion to her weight, a larger producer of saleable animal products than the cow. A good cow may produce in a year six times her weight of milk, with a calf in addition. If we take the cow as weighing 1,000 lb., we have in the saleable products about 800 lb. of dry matter, containing 36.8 lb. of nitrogen. Hens of good laying breeds, weighing 1,000 lbs., will yield in the same time 6,000 lbs. of eggs, the contents of which will include 1,404 lb. of dry matter, containing 120 lb. of nitrogen. It has been often pointed out that since cows' milk is much richer in nitrogen than the carcase of an animal, so the food supplied to cows in full milk should be of a specially nitrogenous character. (1) The argument has still greater weight in the case of the hen, as we have just seen that her produce, in the same time, from the same body weight, contains three and a-quarter times as much nitrogen as that of the cow. The albuminoid ratio of eggs is, indeed, as high as 1: 1.82.

Under natural conditions, a fowl's diet is in summer time of a decidedly

(1) Wherefore, English farmers feed cows largely on horse-beans. Ed.

nitrogenous character, the food consisting largely of insects, worms, &c. The advantage of giving hens a good "run" is well known; this is partly due to the active exercise obtained, which is essential for a continuance of the egg-laying condition, but is also in part owing to the supply of insect food which the hens then obtain. Attempts to provide laying hens with artificial diets of a nitrogenous character have, however, led to some unexpected results, which we must describe in another paper.

R. WARINGTON.

Correspondence.

Sept. 20th, 1893.

SIR.

I have been often asked where seed of the black walnut can be found for sowing this fall.

Will you have the kindness to announce in the next number of the Journal that Mr. Wm Evans, seedman, 89 McGill street, has made arrangements for having in stock a supply of the nuts; all those wishing to provide them should give notice some time in advance.

The nuts should be planted, as soon as received, about two inches deep.

Mr. Evans' charge will be a dollar and a-half a bushel; and as the bushel contains about 300 nuts, it will be seen that the cost will not be great.

Believe me to be, Sir,

Yours, &c.,

H. G. JOLY DE LOTBINIÈRE.

(From the French).

We regret to say that the above did not reach us until the October number was in print. Ed.

Sept. 26th 1893.

I am not sufficiently acquainted with the nature of your own soil on the river bank near St-Thérèse to advise with advantage as to the trees and vines for shade best suited to your locality. However, in low soils, I am sure the soft maple and the different varieties of willows would do very well. Elms should also succeed. The Virginia creeper and, especially, the hardy wild grapes, to be found on the river edge in many localities, can be made very ornamental.

The trees I mention can be found in numbers in your own vicinity. Some intelligent man should also be secured near you, who would engage to select the right kind of trees for planting and contract to plant them for you and guarantee his work. Otherwise you would have to see to it yourself.

This is the short way to a fine and useful ornamental plantation. Should you require more than that viz: select trees not common in the vicinity, you had better write to Augusto Dupuis Esq., President of the County of Les-Islets Horticultural Society, who grows select trees and sends men to plant them. You may depend on Mr. Dupuis' work. His address, as above, will find him at *Village des Aulnaies* P.O.Q.

I send a copy of this letter (without your name) to A. R. Jenner Fust, Editor of the English version of the Journal of Agriculture. He may add some useful information to the above.

Time to plant: Spring, by all means, but as early as possible.

Yours very truly

ED. A. BARNARD.