

Cooked corn-meal (two trials) was to uncooked
as..... 79.3 to 100

MAINE AGRICULTURAL COLLEGE.

Cooked corn-meal (nine trials) was to uncooked
as..... 82.9 to 100

EDS. COUNTRY GENTLEMAN—I estimate the leaves cut from two acres of Swedish turnips to be equal in food value, for the hogs, to a ton of meal. This gives them a money value of \$23. (1) They are worth more than this for food, as they help to make the meal fed to the hogs more valuable. This is a point in stock feeding which farmers rarely appreciate. It is illustrated in this way. On this farm, there were twenty old sows to be turned off. The reason they are to be fattened is because young sows are better. This is my rule, every year, to turn off the most of the old ones and to select out the best young ones for breeders. There is considerable solid wisdom in this plan. My hogs are all the time growing, and when grown they have only to be fattened to turn them into pork. These sows have all had pigs and reared them. This leaves them in a gaunt and hungry condition. To fill them up on clear meal would be too-expensive, with the present relations of meal and pork as to money. Something cheaper must be provided. A pasture of fresh aftermath gave them a good start. Then they had a little meal with a few pumpkins. This was in the same line. Next came the leaves of the turnips with some meal. They keep full all of the time. The leaves are succulent food and there is a considerable amount of growth in them. They keep the hogs in a perfect state of health, and combined with rye, ground entire, the food is well balanced.

L. D. CURTIS.

The Source of the Carbon in Plants.

BY SIR J. B. LAWES, BART, LL. D., F. R. S.

EDS. COUNTRY GENTLEMAN - Although a considerable number of experiments under glass have proved, to the satisfaction of most people, that the atmosphere is the main, if not the only, source of the carbon in green plants, there are many agriculturists who still hold to the opinion that it is the soil, and not the atmosphere, which supplies the carbon. They argue that considering the large quantity of carbon, amounting to 2000 or 3000 pounds, which can be found upon an acre of land, and the minute proportion of carbonic acid which

(1) Eleven dollars fifty cents as the value of an acre of swede tops! As by the time the turnips are carted to the root-cellar the tops do not, I think, weigh more than four tons an acre, this makes them worth nearly \$3.00 a ton.

A. R. J. F.

exists in the atmosphere, it is almost impossible for plants to absorb this quantity during the short period of active vegetation.

It is in answer to several correspondents in the States that I make the following remarks:

I am not aware of any field experiments which bear on the source of the carbon in plants, except those which have been carried out on our own fields, and it is very doubtful whether there are any fields except our own on which a competent answer could be given to the question. It is quite true that we have not published any results bearing upon the question, as we considered that the fact had been sufficiently established by de Saussure at the beginning of the century, and by Bous-singault, and many others, more recently. It is however more satisfactory, and especially among agriculturists, that questions which bear upon the crops grown should be proved in the field, as there are many who are not satisfied with laboratory or pot experiments until similar results have been obtained on acres.

The source of the nitrogen in the leguminosæ affords a good illustration on this point. A large number of experiments with soils and sand placed in pots have shown that soils without vegetation, and soils containing leguminous plants, obtain a considerable amount of nitrogen from some unknown source. On the other hand, there is no evidence up to the present time to prove that the whole of the nitrogen contained in the plants is not derived from the soil. (1)

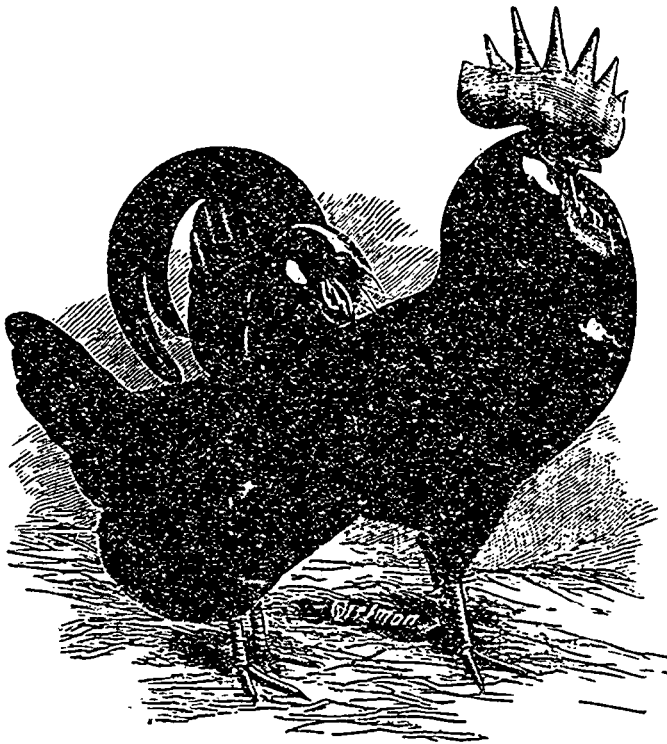
Owing to the varying character of the subsoils of our fields at Rothamsted, the most careful analyses have failed to detect any difference in the amount of nitrogen which they contain

after the growth of several crops of leguminous plants, which remove large quantities of nitrogen, and the subsoils where wheat is grown close to them, which removes comparatively small quantities of nitrogen. With regard to the carbon the same difficulties do not occur. The amount removed even in a small crop is considerable, while in a large crop, if grown for some years by manures which do not contain any carbon, if it is derived from the soil, it must remove the whole, or so large a proportion as may easily be measured by analyses.

We have in our permanent wheat field 12 acres of land on which, with the exception of two small spaces, no carbonaceous manure has been applied for nearly half a century. I will select out of these the permanently unmanured land, and the land which receives a large dressing of mineral manures and salts of ammonia. The average annual yield of this latter experiment is 36 bushels of wheat and 4480 pounds of straw

(1) So Sir John has not changed his mind on the subject, as I was told he had in September.

A. R. J. F.



TYPICAL BLACK MINORCA FOWLS.