weight, and dried earth, but one-half. The latter then is only four times inferior to wheaten straw.

There is nothing special to record respecting the phylloxera; the enemy is being bravely fought everywhere, and the means, sulphuret of carbon &c., autumnal irrigations, and last not least, strong manurings.

Mr Joulie gives some very sensible explanations respecting the laying of grain. It is popularly, but erroneously believed, that the laying of wheat &c. is due, to a deficiency of silica in the stem: analysis however, has shown, that this is not so, there being no perceptible difference between the laid and the standing stems. Corn is laid, because the stem or the foot is weak, and this weakness is the consequence of moist, warm weather, and the absence of sun-light; the latter prevents the elaboration of carbonic acid, to enable the plant to form cellulose, or sinew, which imparts solidity. The stem becomes not ligneous, but herbaceous and etiolated; it breaks at the base, from want of regular nutrition; it has "rickets," it is unable to support the upper part and ears, consequently the crop is laid and destroyed. This is not the same with grain laid from a wind and heavy rain.

A note for September.

The time has again come round for looking over and selecting the best, or casting out the inferior birds. No one can say to a certainty which will turn out the most valuable and correct in the end, for until maturity is reached and combs are developed, and spurs seen to be rightly placed on legs that show no sign of weakness, there must be some doubt. Still, feathers, figure, and the most striking characteristics of the various birds can be judged, and where there is the lack of any one essential, then there is the bird for the cook. It is a great mistake to keep an imperfect or delicate chicken, and one to pay for sooner or later, and in more ways than one, too!

To get one perfect fowl out of half-a-dozen chickens, is good work, though many people appear to act on the presumption that good or show chickens should only be seen in a yard where a carefully selected stock is maintained. This may be so, but, if the case, many "wasters" will have gone to pot before uniformity could be contemplated. Take, for instance, the Dorking fowl, with its remarkable feet, five perfect claws, legs naturally white and short, here is a probability of some mistake. Or take the Plymouth Rocks and Cuckoo breeds, and then the number of black and other strange-looking youngsters would astonish anyone who had only seen the breed as represented in the show pen.

Those who have to do with the live stock of a farm are prepared to find many of the same difficulties in the raising of chickens as they have experienced in the breeding of their animals. We know what a science it is to obtain or maintain a herd of cattle of some particular colour, and we are aware of the necessity of looking back along the pedigree of any animal we purchase, lest the progeny should "throw back" to some irregularity; and we find all this, and perhaps more, in the breeding of fowls of the true type. Therefore it behoves us to be careful as well as watchful.

It is the better plan to keep no chickens for stock which were hatched later than May, except in the case of some particularly favourite and valuable strain. We now have Dorking pullets of this year which have already laid many eggs. Perhaps these came to life too soon, inasmuch as they may moult and prove unproductive at a season when eggs are scarce, which is, when the hens undergo the trying ordeal of putting on their winter's colours.

April-hatched pullets, however, are desirable. Late chickens seldom pay for the food and attention they require, when kept in large numbers. Now is the time to obtain "wasters" cheaply for crossing purposes, when they answer as well as the most perfect fowls that money can purchase.—W. J. P.

Barn Yard Manure.

In the system of agriculture practiced in the United States barn-yard manure, from its cheapness and efficiency, must for a long time constitute the staple fertilizer under ordinary conditions of practice.

Dr. J. B. Lawes, in his valuable pamphlet on "Fertility," says:

"In the district where I live, the land is cultivated on a five-course shift, and the crops which are grown and sold off the land would cost more to produce by the means of purchased artificial manures than the sum which the tenant, under the above system of cultivation, pays for them in rent; or, in other words, as far as regards the production of the crop, the landowner sells his fertility cheaper than the manufacturer of manure could supply it"

The principle that underlies this statement, startling as it may appear, applies with twofold force to successful farm practice in this country.

On the average American farm, with its cheaper land, and soils that have been under cultivation for a comparatively short time, the natural stores of fertility that have been accumulated in past ages must be the leading element in determining the profits of grain production at low prices; and when this natural source of profitable cultivation is properly reinforced with the barn-yard manure that can readily be made, under a fairly good system of management, to retard and diminish the exhaustion that is unavoidable in a paying system of husbandry, the commercial fertilizers, which are two often urged upon farmers as the essential basis of good farming, will find their true place as supplemental manures that are desirable for special purposes.

Aside from the fact that barn yard manure is a complete fertilizer, supplying, as it does, the potash, phosphoric acid, and nitrogen, which are considered the only valuable constituents of purchased manures, it seems to have a specific action on the soil that cannot be obtained with any combination of chemical fertilizers.

In the Rothamsted experiments with drainage waters, from the plots which had been under continuous cultivation with the same crop for more than thirty years, it was observed that "whilst the pipe-drains from every one of the other plots in the experimental wheat field run freely, perhaps four or five times or more annually, the drain from the dunged plot seldom runs at all more than once a year, and in some seasons not at all."

Dr. Voelcker remarks that "this result is interesting and important, for it illustrates in a striking manner the beneficial effects of barn yard manure on the soil in ameliorating its texture, and, generally speaking, its mechanical or physical condition, in consequence of which the growing crops will suffer less during seasons of drought."

After a careful investigation as to the causes of the small discharge of water by the drain of the dunged plot, Drs. Lawes and Gilbert concluded that "the result was due to the greater power of absorption and retention of moisture by the changed soil near the surface."

The power of retaining a large amount of moisture, in an available form, and without making the soil wet, seems, therefore, to be increased by the application of barn-yard manure, and this, with the increased porosity which renders the water of the lower strata of soil available for plant growth, explains the greater immunity of manured land from the effects of excessively dry or wet seasons.