should be thrown over the rounded surface of the clump, for the further exclusion of air and water. The dung is now safe and it may be kept several months without water. Well rotted dung is preferred by "Dame Practice," who proved long age that one load of such dung is worth two of fresh long dung.

Dr Vöelcker said that fresh dung (dry) contains 1 90 per cent of n<sup>i</sup>trogen and rotten dung (dry) 2.47 per cent. The solub'e organic matter and the soluble mineral matters are also much greater in rotten than in fresh dung. The straw used as litter becomes, to a great extent, converted into humic and ulmic acids, and this largely assist in fixing the ammonia produced from the nitrogenous excrementitious matters. The loss of ammonia from fermenting dung heaps is much less considerable than it is generally assumed to With good management little or no waste be. need occur, even from dung in open yards.

I must quote the same chemist again to the effect that, "chemically considered, farmyard manure must be regarded as a perfect and universal manure," because it contains all the constituents which cultivated crops require. It contains without exception all the minerals that are found in the ashes of agricultural crops.

Artificial manures sometimes fail because some one particular element of plant food which they do not supply did not happen to exist in the soil. One may say of dung that it never fails, and therefore never disappoints the farmer.

Dung is the best manure for potatoes, a potash loving plant, not only on account of its potash, but also for the excellent mechanical effect it produces. One cannot look on a plot dunged every year, without recognizing the advantage which "muck" possesses over artificial, irrespective of its direct fertilizing elements. Not a drop of rain escapes from that plot into the drains below, (1) owing to the power of dung of holding in absorption. So that dung is at once food and drainage It promotes subdivision, too, in an eminent degree, as well as absorption of heat. once knew a couple of acres of naturally cold clay land, which on account of the heavy dressings of horse manure it received, with soot and ashes, yielded forage crops for the owner's horses, three weeks earlier than his neighbour's land. No doubt some effect was produced by the organic remains

of the forage crops which were ploughed in every year. As neither fresh nor rotten dung contains much free ammonia, and active fermentation and evolution of free ammonia is stopped when it is spread on the field, very little waste of the fertilising substances in dung takes place, even if it is not immediately ploughed under. In applying dung to pastures or young clovers, of course it cannot be ploughed in, but the rain washes it in and no fear need be entertained that these methods of manuring are wasteful. (1) They are in fact advantageous, since the nearer the manure is to the surface, the more readily will it become decomposed and converted into plant food. It may be stated further in connection with dung that a skilful stock farmer may, perhaps, obtain it free of cost, while the vendors of artificials always charge for them, and somestime the cost is far too high. W. R. GILBERT.

## FIGHTING THE WIREWORM.

The loss to farmers incurred by the destruction of cereal and other crops by the wireworm must amount to an enormous sum annually. Cereals, root crops, hops, and market garden crops, all are subject to the ravages of this varacious insect. And not only is injury done in a direct way by the insects damaging the plants, but it must be remembered that it is largely owing to the presence of wireworms around the roots of young turnips and other plants that rooks are induced to pull up these plants wholesale in infested fields. How to combat the wireworm is certainly a problem that may well engage the close attention of agriculturists.

Until recently but little research work in this line has been attempted in this country, but last year the Agricultural Committee of the Cornwall County Council took the matter up, and commenced a comprehensive series of trials, which, it is to be hoped, will eventually lead to the discovery of some effectual mode of combating the pest. The results of some preliminary trials are recorded in detail in the recently-issued annual report of that committee.

The object of these preliminary experiments was to test the merits of a number of materials which had, up to the time of commencement of the trials, been generally recommended to farmers

<sup>(1)</sup> Except, of course, after abnormal rainfalls. ED.

<sup>(1)</sup> Good. Ep.