

These results lead to the conclusion, that nearly all the analyses of roots hitherto made, especially with reference to the action of manures upon gross weight and composition, are valueless. The same remark applies to all experiments made upon the relative feeding qualities of certain crops. We make this sweeping assertion with considerable diffidence, although we feel certain that, on a little consideration, it will be found to be just. Suppose, for instance, that roots grown with one manure are to be compared with the same kind of roots grown with another manure; it is quite clear, that if the roots of one set examined be larger than those of the other, the manure with which the small roots were grown will be pronounced to be the better adapted of the two for the growth of that particular root crop. Now, the size of the roots depends, among other circumstances, upon the intervals between the plants; and hence, in all such comparisons, the manure applied to land upon which the close-planting system prevails will have the advantage over that applied to land cultivated under the other system. Need we wonder, therefore, that practical agriculture has hitherto derived so little benefit from such an analysis?

It is needless to point out the influence which the facts that we have established must have upon the system of giving prizes for large roots, on the one hand, or of growing them on the other. It is evident that the object of the farmer ought to be, to grow the largest possible amount of food from a given space of ground, quite irrespective of the size of the roots; and if science leads to the conclusion, that that end will be best attained by the cultivation of moderate-sized roots, the present system, which favours the growth of large roots, must be modified. It is for the practical agriculturist to show how this is to be attained; but we are of opinion that a good many useful hints might be gleaned from the practice followed on the continent, with reference to the sugar beet.

#### TIPTREE FARM.

Mr. Mechi held his annual gathering of agriculturists on Wednesday, July 20th, and it went off as pleasantly as ever. Mr. Mechi entertained 300 guests, every one of whom must retain most agreeable recollections of his visit. The day was fine, and the first three hours of the day were spent in examining the state of the crops, and in testing the latest novelties in agricultural implements. Whatever may be the effect of a very unpropitious season elsewhere, at Tiptree it has done no harm; and while the agriculturists there seemed to be generally of opinion that the harvest would be short and late, not a grumble about the weather fell from their hosts' lips. He has this year very excellent wheat, and in other respects the produce of his farm promises a good average; but the two points on which his management shows strongest and to the best advantage are his clover and his rye grass. These bear unmistakable testimony to the value of the new system of liquid manure irrigation which Mr. Mechi has adopted, and in the details of which he has carried out many valuable improve-

ments. The clover is a second crop, and the rye grass a third, and both are exceedingly luxuriant. It may therefore be regarded as the chief feature of the present gathering at Tiptree, that it furnishes, within easy reach of the metropolis, a remarkable confirmation of the large results which have been already obtained in Scotland from liquifying the manure of the farm, conveying it through iron pipes to every part of the land, and, by gutta percha tubing attached to hydrants, distributing it liberally either upon the fallows or upon the growing crops. Such a system not only saves the heavy expense of cartage, but presents the plants with their natural food in the most convenient, direct, and effective form. It is a great step in advance; and, being no longer an experiment, but fairly adopted by the most enterprising farmers, is paving the way for the introduction of that larger and still more important change, by which the sewers of the towns will be made to fertilise the country, and, instead of breeding fever and pestilence, will help to increase the supply of food for the people. The next important point of any novelty brought forward was the trial of Samuelson's digging machine. It is rather too much for horse power within any moderate limits, but the manner in which it raises and pulverises the land, and the depth to which it is capable of acting, encourage us to hope that the time is not far distant when we shall have that most desirable and valuable of all implements, and which has been so long sought for—a steam digging machine doing the work of unskilled agricultural labour, and relieving our peasantry from the bondage of toil, the conditions of which are compatible with the grossest ignorance.

In the management of his stock, Mr. Mechi has made some advances upon the practice of former years. By a coating of limewash he has got rid of the swarms of flies that used to torment his cattle, and the same simple expedient tends to keep his feeding-sheds cool and sweet. His tank regularly every morning draws off the accumulations of the manure during the previous day, which are washed into it and liquefied.—He now keeps upon the produce of the 170 acres of which his farm consists, 360 sheep and 40 bullocks. He has also about 160 pigs, which, however, are fattened off with purchased food. The spirit which draws such a character from his shop in Leadenhall-street to improve the agriculture of his country is more creditable to him than the ambitions of many people whom society places far higher up in her ranks. Mr. Mechi, if he never produced a favourable balance-sheet, has done great service to the cause which he has striven so vigorously to promote. He has, in very difficult circumstances, and with unvarying good humour, been a chief connecting link between the practice and the theory of farming.—Claiming, and even insisting to be recognised as practical, he still inclined his ear to the speculative—some said the visionary. When events had opened a chasm between the two, he adventurously and goodhumoredly helped to span it, and now he is doing all in his power by these annual gatherings to cement the union so effected. The names of the people he invites to Tiptree sufficiently indicate this motive, for there we found