&c., in water, about one ton to the acre, and finds it exceedingly beneficial, especially on dry gravelly soils, such as are thin and poor, and under the usual mode of preparation, yield but very indifferent crops of any description. And if in the moister and cooler climate of England the water drill is found, after extensive trials, to be so advantageous, it is surely not likely to be less, but rather more beneficial in Canada, where the summers are much warmer and the climate far drier and hotter during the season of vegetable growth.

But the value of the mere ton of water per acre added to the soil is far more considerable than at the first sight appears; for if we suppose that the liquid is drilled at a distance of twenty-seven inches, and that there are ninety-two rows of seventy yards in length per acre; and if we calculate that the water delivered from each coulter moistens an extent of the soil equal in breadth to three inches, then this moistening of the soil extends to only 536 square yards of soil, or at the rate of between nine and ten tons per acre, which, if it fell in rain, would be a good soaking shower, equal to about one-tenth of an inch; but which, from falling on the surface of the field, would assuredly be far less advantageous to the young plant than the same amount deposited under the surface immediately in contact with the germinating seeds. Or, to put the same thing in another way, as the water drill moistens *in breadth*, (if we calculate the diffusion of water at three inches, and the drills at twenty-seven inches apart,) one-ninth of the land then drilling in one ton of water, is equal to nine tons moistening the whole acre.

Mr. Ruston commenced his experiments with the manure drill in 1854, and found by repeated trials in subsequent years, that this mode of applying liquid manure was alike beneficial to grain, particularly oats, as to mangels, turnips, colewort, &c. We subjoin, in a condensed tabulated form, the results of his experiments with mangel wurzel, the seed being drilled, and the land dunged, and super-phosphate of lime mixed with the water:

Drills.	Cwt. per acre.		Produce per acre Loads.	Tons.cwt
Water—1½	Super-phosphate of lime..	dung	18.....	20 16
Dry—	do	do ... do	16.....	15 9
Dry—None	.....	do	16.....	13 12
Water—1½	Superphosphate.....	do	16.....	21 0
Dry—	do do	do	16.....	15 1
Dry—None	.....	do	10.....	15 0
Water—1	Super-phosphate.....	do	11.....	17
Dry—	do do	do	11.....	13 1
Dry—None	.....	do	11.....	8 1
Water—1¾	Super-phosphate.....	do	11.....	16 1
Dry—	do do	do	11.....	14 1
Dry—None	.....	do	11.....	11 1
Water—1	Super-phosphate.....	do	13.....	13 1
Dry—	do do	do	13.....	10
Dry—None	.....	do	13.....	6 1
Water—1½	Super-phosphate	do	15.....	9 1
Dry—	do do	do	15.....	8 1
Dry—None	.....	do	15.....	6 1
Water—1	Super-phosphate.....	do	13.....	27 1

Mr. Ruston remarks that the season when those experiments were made was exceedingly unfavorable; that during August and September, just when the bulbs should have been daily gaining considerable weight, the drought was intense, and in one or two instances imperilled their existence. Those sown with the dry drill were in some instances a total failure, the land being too light and poor for crops of this kind, except in showery summers and with dressings of barn-yard manure.

"Why is it," remarks Mr. Ruston, "that such marvellous results, on some soils especially, should accompany the use of the water drill, and super-phosphate of lime, belongs rather to the chemist than the practical farmer to explain. It appears pretty certain, that the action of the water upon the soluble portions of the manure is such that healthy food is made immediately available to the plant, whilst the less easily soluble portions are slowly and gradually decomposing in the soil, yielding the support required by the plant, as it continues to progress, and, as the experiments show, not failing it until its full growth has been attained. I have also further learned from experience, that the manure sown in this liquid form is not only beneficial and influential upon the early growth of plants when applied to lands where drought or a deficiency prevails, but also upon lands which are in a satisfactory state, as regards moisture. On one or two occasions I sowed lands with coleseed which were too wet to roll, and where the horses had to be taken out in consequence, *and yet the difference between the crops where the manure was sown with the water drill and where applied with the dry drill was as op*