

am about to recommend, I have not only long and successfully practised, and on a large scale, but that I have ever been willing and ready to support, by showing the crops in this way produced. And I am sure that any farmer who witnesses these will readily allow that with the adoption of the system of thin sowing I grow very large crops, much beyond the general average, and on soils of a very inferior description, and with less than the ordinary expenditure in labour and manure.

There are few persons who seriously take into consideration how small a return is commonly realised from the seed sown, and how large a proportion of that return is again swallowed up for seed. Let us take wheat for instance. The practice throughout England is to sow two and a half or three bushels per acre, and the yield is seldom forty bushels, and more commonly only twenty bushels, and one-tenth at least of the crop growing is consumed as seed. These facts, and the knowledge that a single grain of wheat, planted where it has room to tiller out, will readily produce four hundred-fold, and often very much more, has induced me, in the course of the last eleven years, to make a variety of experiments—the results of which have shown me that independent of the waste, a *positive and serious injury is done to the crop from sowing so much seed*, and in result is perfectly analogous to attempting to feed four animals on a pasture sufficient only for one; and in consequence I have gradually reduced my proportion of seed wheat from three bushels per acre, which was my practice, down to about three pecks, which reduction I have accomplished to the evident improvement of my growth of corn. And I have at this time (July, 1843), the finest promise of a crop on all my farms from this latter quantity, and this, too, after one ploughing of pea and bean stubbles, and upon soils very low in the scale of natural fertility, and without having had any fallow or having had applied any manure for some years.

In order to show that it is not by any artificial aid that I have grown the crops produced on my farms, and in reply to the questions which I have so often had put to me as to what is my practice, I go into the following details. My course of cropping is as follows, viz. :—

1st Year—**RYE**, } For green meat, and feeding  
" **TARES**, } off with sheep in April,  
May, June and July, and  
followed by  
" **MANGEL WORTZEL**, } With a liberal  
" **SWEDES**, } Dressing of farm  
" **CABBAGES**, } yard dung.  
" **TURNIPS**, }  
2nd Year—**OATS or BARLEY**, with **CLOVER**.  
3rd Year—**CLOVER** twice mown for hay.  
4th Year—**BEANS or** } The Beans having Tur-  
" **PEAS**, } nips sown between the  
rows, and which come  
into food in September  
and October.

5th Year—**WHEAT**.

By this rotation of cropping I never grow two crops of a kind in succession, and I get three green crops and three corn crops in five years. The produce

of corn and cattle food grown by me in this way, I do not hesitate to say, is very much larger than I could obtain by any other, and at less expense and far less hazardous.

My practice is to drill every thing (clover seed alone excepted); to carefully horse-hoe, hand-hoe, and weed, so that the land may be kept perfectly free from weeds, and the soil between the rows may be stirred and receive the benefit of pulverisation and aeration, advantages of which gardeners are sensible—but by farmers are lost sight of, or not sufficiently attended to. My rye and tares, for green feeding, are sown in rows at nine-inches intervals; all my white corn at twelve inches: and my pulse at twenty-seven inches. When I have established this routine, the only dressing given is for the root crop, and that with manure produced on the farm, by the consumption by fattening stock of the Swedes, and of hay and straw, and fodder by other stock in the yard. I fatten a large proportion of sheep, at least two and a half in the year for every arable acre; these consume on the land, having oil cake, and in folds, all the turnips and cabbage, and half the rye, tares, and Swedes—the feeding being so arranged that the folds extend alike over the parts cleared with that fed. My proportions of seed per acre, and times of sowing, are as follows, viz. :—

Cf Rye, 1½ bushel, in August & September.  
Tares, 1½ bushel, in three sowings, in August, September, & October.  
Mangel Wortzel, 6 lbs., in April.  
Swedes, 1 quart in May.  
Turnips 1 quart, in July.  
Cabbages, 1 every three feet, in June.  
Oats, 8 pecks, in February and March.  
Barley, 7 pecks, in Feb., March, & April.  
Wheat, 3 pecks, in Sept. and October.  
Peas, 8 pecks, in January & February.  
Beans, 8 pecks, in Sept. and October.

Between the crops which are sown at twenty seven inches intervals, I constantly in the spring use the horse-hoes; beginning with times which bring to the surface all root-weeds, and pulverise the soil; and alternately with knives, which cut all on the surface. By the free use of these hoes, and by hand-hoeing the narrow sown corn, and by drawing all weeds from out of the rows, and by using Finlayson's harrows after most ploughing, I have brought my land clean and without fallowing; and I am sure I grow better Swedes and turnips after rye and tares than I used to do after a fallow; and am much less attacked by the fly.

My ploughings are all as deep as I can afford to give time and strength to them, I occasionally use the subsoil and trench ploughs; going fifteen and sixteen inches deep, and bringing all the fresh soil to the surface that I can get up.

My farms are naturally very poor; two are principally gravel—in parts very boggy and springy, wet in winter and burnt up in summer, reclaimed from heat only thirty years; and the other a hill farm, with but few inches of soil

above chalk. These farms have been greatly improved by the free use of the subsoil and trenching ploughs, but are only kept in profitable tillage by the general economy in husbandry, and the large returns I have obtained.

In this way, and on these farms, I have frequently produced about five quarters of the best white wheat to the acre, and have grown above thirteen quarters of oats and above eight of barley; and my clover and turnip crops are always remarkably good.

Having from this brief detail of my practice shown the success on an extensive scale with thin sowing, I will explain why it is that three pecks of seed wheat per acre must be much nearer the correct quantity than ten or twelve pecks, and that any surplus of seed beyond a bushel must be very injurious to the latter growth of the crop.

The produce of an ear of thick sown wheat yields about forty grains (I say thick sown, for thin sown yields very much more), and therefore the produce of an acre (or twenty bushels, the ordinary average) must be, no matter how much has been sown, the growth of the ears from one fortieth, or two pecks of seed (and that, too, is allowing only one ear to grow from each grain, and forty grains from an ear). This being the fact, of what use, I ask, or what becomes of the remaining eight or ten pecks of seed which are commonly sown? But in allowing one ear only to grow from a grain of seed, and each to contain only forty grains, I am far from taking what in reality should be the produce; for a single grain having room will throw up ten or twelve ears, and these ears will each contain from sixty to eighty grains; and hence any provision for the loss of seed from vermin or birds unnecessary, for supposing half or much more of my small allowance to be taken away or destroyed, the deficiency of plants is immediately met by the larger size of the ear and by the tillering which is made, and the additional ears so produced, wherever room admits of the increase. Among the many proofs I have had of the advantage from thin sowing, the following is a striking and among my people well-known fact. In the autumn of 1840, I had to sow with wheat a field of eight acres, and I gave out seven bushels for the seed, but owing to an error of the drill-man in setting the drill, when he had sown half of the field, he found he had not put on half of the seed; but that I might not discover, by the overplus, his error, he altered the drill, so as to sow the rest on the remainder of the field, and in this way one half of the field had little more than two pecks to the acre, whilst the rest had nearly four pecks. I did not know of the error, and was surprised and frightened in the winter by finding part of the field so thin, and had not the rest of the field looked so much better, should have ploughed it up; but at harvest the thinnest sown half proved the best, and I