

would vanish from the land, and strangers would take their places. It was important they should know that in all the large towns, manufacturers were now bringing up one of their sons as farmers, and giving him all the knowledge that he would require, in order to conquer the stubbornness of the soil. Hitherto the tide had come the other way—it was the farmers who made their sons manufacturers; now the manufacturers were making their sons farmers.

*From the Scottish Farmer.*

### TURNIP CULTURE.

(Continued.)

Farm-yard dung should be well decomposed for the turnip crop. It is the opinion of many intelligent Farmers that rank manure is favourable to, or hinders the fly; but be this as it may, it is necessary, in order to prevent or mitigate the ravages of that destructive pest, that the plants should be as quickly as possible beyond the stage of their growth in which they are most liable to be attacked and devoured: and this object can be accomplished only by minutely pulverising the soil, sowing abundance of seed, and having the manure properly fermented previous to its deposition in the drills. Another important advantage arising from having the dung well decomposed, is the facility with which it admits of being evenly distributed along the hollows of the drills.

Among the numerous extraneous manures which are now employed in raising turnips, bones and genuine guano are justly entitled to the pre-eminence. The efficacy of the former is universally known and acknowledged, while that of the latter has been attested by repeated trials in different parts of the kingdom. It is deemed unnecessary to offer any observations in this place on the properties of those valuable substances, as they are now perfectly familiar to all engaged in agricultural pursuits; and our remarks on their application shall be very brief.—It is also considered needless to advert to any other of the portable manures.

When bone-dust is used by itself, the quantity usually applied to the acre is from sixteen to twenty bushels; and it is a well known fact that a larger allowance produces little or no additional benefit—so far, at least, as the immediate crop is concerned. It is frequently, however, applied in conjunction with farm-yard dung, when the latter is not sufficiently fermented, or when the supply is inadequate. Even when a sufficiency of dung is available on the farm, bones may with great advantage be occasionally added on account of their phosphates and other valuable constituents. A mixture of bone-dust, sifted coal ashes, and rich vegetable mould, has frequently been applied to the turnip crop with beneficial effect. An important advantage which bones have over other substances, is that their adulteration, if at all attempted, is more easily detected than in the case of

the other portable manures. Bones dissolved in sulphuric acid have been much used of late as a manure for the turnip crop, and in the majority of the recorded instances with the most satisfactory, if not astonishing results. By being thus prepared, they are brought into that minute state of division in which their most valuable constituents are directly available to the crop; but economy is the great recommendation of this manure.—six bushels of bones being amply sufficient for an imperial acre. The quantity of sulphuric acid used is commonly about one-third of the weight of bones. Water is added to the acid nearly in the proportion of three gallons of the former to one of the latter; and the bones saturated with the mixture are suitably dissolved in the course of three or four days. For several highly useful instances of the application of this manure to the turnip crop, the reader is referred to last year's volume of the *Journal of the Royal Agricultural Society of England.*

Genuine guano is undoubtedly an excellent manure for raising turnips; and when the quantity of dung available is inadequate to the extent of ground intended for green crop, it may confidently be resorted to as auxiliary. But great circumspection must be exercised in the purchase of the article, as it may be, and very often is, extensively adulterated.—Peruvian guano, though the dearest, is the most certain in its effects. For reasons already assigned, this substance, however genuine it may be purchased, should not be used by itself for the turnip crop—it being found to act more beneficially along with farm-yard dung, or in combination with gypsum, finely-sifted ashes, saw-dust, dry mould, or other matters of a similar kind. Whatever mode of application may be adopted, care must be taken to prevent the guano from coming into immediate contact with the seed, by interposing a small portion of the soil.

When the second or 'rough' leaves, as they are termed, have attained the height of about two inches, the hoeing and thinning processes are commenced. The first operation consists in passing a horse-hoe or drill grubber, of which there are various kinds, along each of the intervals—partly for the purpose of destroying any weeds that may have sprung up between the rows, but chiefly to pare away a portion of the earth from the sides of the drills, in order to facilitate the singling of the plant. It is obviously of great importance to have the young plants singled out as early as possible after their rough leaves have been developed—particularly when there is a thick brard. With regard to the distance at which the plants should be left standing in the rows, something will evidently depend on the variety of turnip and the quality of the soil. All kinds should be allowed ample space for the growth of the bulbs to the greatest size that is compatible with sufficient solidity of texture:

but very considerable loss may be sustained by making the intervals unnecessarily wide. It is a valuable and peculiar property of the Swedish turnip that it increases in amount of nutritive matter, in proportion to the size of the bulb; whereas the softer kinds, such as the white globo and its allies, when allowed to attain a large size, become deficient in valuable juices. According to Sinclair, 1720 grains of large-sized Swedish turnips afforded 110 grains of nutritive matter; whereas, roots of a small size only produced 99 grains from the same bulk. On the other hand, a bulb of the white sort measuring seven inches in diameter, yielded only 72½ grains, while an equal quantity of roots, four inches in diameter, contained 80 grains of nutritive matter. Hence, as a general rule, Swedes should be allowed sufficient room in the drills to grow to the largest size attainable; and the distance between the plants of the common turnip should be such as to enable the bulbs to grow to a medium size—the yellow and hybrid kinds being farther apart than the white. On land in a high state of cultivation, Swedes may with great propriety be singled out to the distance of eleven or twelve inches in the longitudinal direction; nine inches may be allowed for the yellow sorts, and eight for the white.

In some parts of the country the thinning of turnips is performed by the hand, with the view of insuring regularity in the spaces between the plants; but this is a very expensive and expensive method, and is justifiable only where servants cannot easily be initiated into the proper use of the hoe. This, however, is an operation that requires considerable attention and dexterity to execute it properly—though we frequently see it performed in a very careless and, consequently, imperfect manner. The drills should by no means be levelled down with the hoe, but be kept high at the centre, with a uniform curvature, in order to enable the water to escape quickly from the plants during heavy rains. In performing the second hand-hoeing, care must be taken to avoid cutting or wounding the young bulbs, as those that are thus injured most invariably decay early in winter. Moisture enters by the slightest incision in the rind, and, aided by the influence of the frost, infallibly occasions the putrefaction of the turnip. We find five export hoers (grown up girls and boys) capable of thinning and first hand-hoeing a Scotch acre per day on an average, while two suffice for the second hoeing; but much will of course, depend on the nature of the soil and other obvious circumstances.

When the land has been thoroughly cleansed before sowing the crop, it is not a difficult matter to keep it free of weeds during the summer months; but whether the ground be clean or foul, there can be no doubt of the advantage of frequently stirring and pulverising the spaces between the rows during the early growth of the plants. It is in fact, a point of