

suit particular lands. Attention however should, in all cases, be paid to the plants growing wild in the neighbouring pastures, or in similar soils, and the greater portion used of those which are observed to thrive best.

In certain instances I have mentioned particular quantities of seeds to be mixed with others; but in general I have stated how much it would require to sow an acre with each kind separately; from which a person may form a criterion, when several sorts are used, as to what quantity of each sort should be adopted. Taking into view, therefore, that nothing but a mixture of proper kinds of Grasses, &c. will make good pasturage, and that our knowledge is very imperfect on this head at the present season, we must advise that particular attention be paid to the subject, or little good can be hoped for from all our endeavours.

SECT. III.—FODDER FROM LEAVES AND ROOTS.

THE student in agriculture will find in this department a wide field for speculation, which, although it has been greatly improved during the last century, still affords much room for experiments.

During the last thirty-five years I have had opportunity of observing the great difference in the quantity of cattle brought to one of our largest beast-markets in the south of England; and it is well known that this has increased in a ratio of more than double; and I am informed by a worthy and truly honourable prelate, who has observed the same for twenty-five years previously, that it has nearly quadrupled. I have also made it my business, as a subject of curiosity, to inquire if the increase at other markets has been the same, and from all accounts I am convinced of the affirmative. Now as we have ample proofs from the statistical accounts of our husbandry, that less corn has not been grown in the same period, we shall naturally be inclined to give the merit of this increase to the introduction of the Turnip husbandry, which, although it is now become so general, is, comparatively speaking, but in its infancy; and it is from that branch of our agriculture that has sprung the culture of the great variety of fodder of the description which I am now about to explain.

And here it may not prove amiss to observe to the botanical student, should he hereafter be destined to travel, that by making himself thus acquainted with the nature of such vegetables, he may have it in his power to render great benefit to society by the introduction of others of still superior virtues, for the use both of man and the brute creation. When Sir Walter Raleigh undertook his expedition to South America, the object of which failed, he had the good fortune from his taste for botany to render to his country, and to the world at large, a more essential service, by the introduction of one single vegetable, than

was ever achieved by all the military exploits performed before or since that period*. It has not only been the means of increasing the wealth and strength of nations, but more than once prevented a famine in this country when suffering from a scarcity of bread-corn, and when most of the ports which could afford us a supply were shut by the ambition of a powerful enemy.

63. *BRASSICA Napus*. TURNIP.—Turnips afford the best feed for sheep in the autumn and winter months. It is usual to sow them as a preparatory crop for Barley, and now very frequently for a crop of Spring Wheat. Turnips are not easily raised but where some kind of manure is used to stimulate the land. In dry seasons the crop is often destroyed by the ravages of a small beetle, which perforates the cotyledons of the plants, and destroys the crop on whole fields in a few hours.

Many remedies against this evil are enumerated in our books on husbandry. The best preventative, however, appears to be the putting manure on the ground in a moist state and sowing the seeds with it, in order to excite the young plant to grow rapidly; for the insect does not hurt it when the rough leaf is once grown. I have this season seen a fine field of Turnips, sown mixt with dung out of a cart and ploughed in ridges. The seeds which were not too deeply buried grew and escaped the fly; when scarcely a field in the same district escaped the ravages of that insect. Turnips are sown either broad-cast or in drills. It takes about four pounds of seed per acre in the first mode, and about half the quantity in the second.

There are several varieties of turnips grown for cattle; the most striking of which are, the White round Norfolk; the Red round ditto; the Green round ditto; the Tankard; the Yellow. These varieties are nearly the same in goodness and produce: the green and red are considered as rather more hardy than the others. The tankard is long-rooted and stands more out of the ground, and is objected to as being more liable to the attack of early frosts. The yellow is much esteemed in Scotland, and supposed to contain more nutriment†. The Stone and Dutch turnips are grown for culinary purposes, and are also sometimes sown after the corn is cleared, as being small and of early growth; these in such cases are called stubble turnips, and often in fine autumns produce a considerable quantity of herbage. For a further account of the culture &c. see Dickson's *Modern Husbandry*, vol. ii. p. 639.

There is nothing in husbandry requiring more care than the saving seeds of most of the plants of this tribe, and in particular of the Genus *Brassica*. If two sorts of turnips or cabbages are suffered to grow and bloom together, the pollen of each kind will be sufficiently mixed to impregnate each alternately, and a hybrid kind will be the produce,

* The Potatoe was introduced by Sir Walter Raleigh, on his return from the River Plate, in the year 1586.

† The usual season for sowing the above varieties is within a fortnight or three weeks after Midsummer.

and in ninety-nine times out of a hundred a worse variety than either. Although this is generally the result of an indiscriminate mixture, yet by properly adapting two different kinds to grow together, new and superior varieties are sometimes produced. One gentleman having profited by this philosophy, has succeeded in producing some fine new varieties of fruits and vegetables, much to the honour of his own talents and his country's benefit*. It is well known to all gardeners that the cabbage tribe are liable to sport thus in their progeny; and to some accidental occurrence of this nature we are indebted for the very useful plant called the

64. ROOTA-BAGA. SWEDISH TURNIP.—Which is a hybrid plant partaking of the turnip and cabbage, and what has within these few years added so much to the benefit of the grazier. This root is much more hardy than any of the turnips; it will stand our winters without suffering injury from frosts, and is particularly ponderous and nutritious.

It is usually cultivated as the common turnip, with this difference, that it requires to be sown as early in some lands as the month of May, it being a plant which requires a longer time to come to maturity.

Every judicious farmer who depends on turnips for foddering his stock in the winter, will do well to guard against the loss sometimes occasioned by the failure of his Turnips from frost and wet. Various ways of doing this are recommended, as stacking &c. But if he has a portion of his best land under Swedish turnip, he will have late in the winter a valuable crop that will be his best substitute. Another advantage is this, that it will last a fortnight longer in the spring, and consequently be valuable on this account. The quantity of seed usually sown is the same as for the common kinds of turnip. There are two varieties of this plant, one white and the other yellow: the latter is the most approved.

65. BRASSICA *Napo Brassica*. KOHLRABBI.—A hardy kind of Turnip cabbage, grown much in Germany for fodder: it is very nutritive, and has the property of resisting frost better than either the turnips or cattle-cabbage. The seed and culture of this are the same as of Drum-head cabbage.

There are two varieties of this plant, the green and the purple; the latter is generally most esteemed.

66. BRUSSELS SPROUTS.—This is a large variety of cabbage, very productive and hardy. The culture the same as for Cattle-cabbage.

67. BRASSICA *oleracea*. DRUM-HEAD CABBAGE.—This is usually sown in March and the plants put out into beds, and then transplanted into the fields; this grows to a most enormous size, and is very profitable. About four pounds of seed is sufficient for an acre.

* See Mr. Knight *On the Apple-tree*.

68. *BRASSICA Rapa*. RAPE.—Is sown about the same time as Swedish turnips, and hoed out for winter feed. The seed of this is valuable for feeding birds, and it is also pressed for oil, which is in demand for various purposes. The quantity of seed the same as turnips.

69. *BRASSICA Napus* var. CHAUX AU MILLE TETES.—This is a large variety of the Rape, something similar to the Brussels Sprouts, producing an abundance of green herbage. It was introduced from France some time since; it does not appear to have any merit more than the above plant, which is equally as productive and hardy: another variety called the Chaux de Milan is very similar. It requires the same kind of culture as the Drum-head cabbage.

70. *DAUCUS Carota*. CARROTS.—These are cultivated as a favourite food for horses. The best mode of growing carrots is by drilling them at fifteen inches asunder, by which means they can be kept clean with less trouble than in the broad-cast method; about two pounds will seed an acre; the seed should be well beaten in a bag before it is drilled, which will make it smooth and fit to pass through the hopper. About four pounds will sow an acre broad-cast.

71. *PASTINACA sativa*. PARSNIP.—This is also grown for fodder. The roots yield a good deal in the winter season. There is however a difficulty in taking parsnips out of the ground, which renders it a more inconvenient crop than carrots and many other roots equally good and attended with less labour. About four pounds of seed will sow an acre.

72. *SOLANUM tuberosum*. POTATOES.—Of all the plants ever introduced into this country this has been the most beneficial, but it must be remarked that the same prejudice naturally excited against all new things, existed for many years against this.

But a few years since gardeners in their writings directed "that great care should be taken in clearing the ground of this root, for it was of less account than any other, and if suffered to remain and not dug out clean, was likely to become a most troublesome weed." Thus says Bradley in 1739; and Messrs. London and Wise, who planted Hampton Court Gardens, and who published *The Compleat Gardener* in 1699, do not even mention it.

It is now become very common in all parts of the world, and is very generally known as the best of all substitutes for bread.

Many varieties of the Potatoe are now cultivated. The most approved are, the Ox Noble; the Champion; the Red-nosed Kidney; the Black Potatoe; the Apple Potatoe; all these are grown for feeding cattle. The mode of cultivation is by planting the roots in the spring.