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Remarks on Mangel-Wurzel
T. Newby
1813

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REMARKS

ON

Mangel-Wurzel;

OR

ROOT OF SCARCITY,

WITH

AN EXPOSITION

ON

ITS UTILITY,

AND

DIRECTIONS FOR ITS CULTURE.

BY THOMAS NEWBY.

"Ye generous Britons, venerate the plough;
"And o'er your hills, and long-withdrawing vales,
"Let Autumn spread his treasures to the Sun
"Luxuriant and unbounded!"

THOMSON.

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Cambridge, 1813.

THE

MANGEL WURZEL;

OR

Root of Scarcity.

THE many kinds of BEET which are known to have been used for the preparation of Sugar from their roots, are varieties of that species called *Beta vulgaris*, or *Beta caule erecto* of LINNÆUS, and of his *Pentandria Digynia* class and order: they consist of the *Beta rubra vulgaris*, *Beta rubra major*, *Beta rubra radici Rapæ*, *Beta lutea major*, *Beta pallide virens major*, *Beta alba vel pallescens quæ Cicla officinarum*, and *Beta communis viridis*. Of these the principal are the *Beta rubra vulgaris*, *runkel Rube* of the Germans, or *red Beet* of the English, and the *Beta Cicla*, *den weissen Mangold*, of the Germans, or *white English Beet*; and varieties of these whose roots have coloured rings.

The *Beta Cicla* is the MANGEL WURZEL, or *Root of Scarcity*, of Dr. LETTSOM; others have made it a distinct species, and called it *Beta altissima;* however, we owe to Germany the discovery of this useful Plant, in many parts of which the cultivation has become a matter of national concern, and is now used for the purpose of extracting Sugar from it. The roots are pressed, and the saccharine liquor boiled down to the consistence of a syrup, and of course undergoes a variety of operations; and since England has prohibited Sugar and Molasses being exported into France it has proved that—

"Necessity is the mother of invention,"

and her ruler has been obliged to fly to this resource, and to distil saccharine matter from MANGEL WURZEL, for the supply of his subjects, and we find he has directed his attention to the cultivation of it throughout his provinces to an extent of upwards of A HUNDRED THOUSAND ACRES annually; thus—

"Misfortunes oft prove to invention kind."

We learn, from the account of M. ACHARD of *Berlin*, in '*Ausfuhrlische Beschreiburg*,' that a portion of *Mangel Wurzel Root*, which will cost but six-pence in Prussia, will yield one hundred pounds weight of raw sugar; and 20lbs. of the root will produce one of sugar. One hundred

pounds of raw sugar will give fifty-five of refined, and twenty-five pounds of molasses; and it is computed, by the same gentleman, who has employed much time and attention in the pursuit, that a German square mile of land (that is sixteen square miles English) properly cultivated with *Mangel Wurzel*, would produce sufficient sugar to supply the whole Prussian dominions. In the 18th volume of the Transactions of the Society instituted in London for the encouragement of Arts, Manufactures, and Commerce, will be found a most satisfactory report of this useful vegetable, by Mr. TAYLOR of *Leipsig*, in a letter dated May 20, 1800, on the culture of *Mangel Wurzel*, the application of its leaves as food for cattle, of its root for making sugar, and of its residuum for other useful purposes; he says, from a result of a series of experiments, it appeared that, after paying the farmer for the roots, and discharging all incidental expences whatever, a profit was yielded of nearly cent. per cent.; and from experiments of PROFESSOR LAMPADIUS, of *Freyberg* near *Dresden*, it appears that the *Mangel Wurzel roots* contain *water, fibrous matter, sugar, mucilage, glaire, starch, colouring matter, scented matter*, and a *bitter substance*. The water is in proportion of from one-half to two-thirds of the weight of the roots; the fibrous matter of the roots differs, and is considerably more in poor than in rich land; the saccharine particles vary from two to five per

cent.; the mucilage is from three to five per cent. and the glaire, or matter resembling the white of eggs, is about one per cent.; the starch is in very small quantities, being only about two or three ounces in a hundred weight; the colouring matter undergoes several changes by being exposed to the air, as yellowish, brown, and red, and may be precipitated by acetate of lead; the scented matter is volatile; it rises in distillation of the root by water, combines closely with spirits of wine, and this matter occasions a peculiar contraction in the organs of taste.

The cultivation of *Mangel Wurzel* is now pretty general in most temperate parts of Europe, though of minor date in England. Amongst the greatest promoters and earliest cultivators of it, we have to notice SIR MORDAUNT MARTIN, who is reckoned the most successful cultivator of *Mangel Wurzel* in *Norfolk*. He observes, in a letter lately published,—"I do not claim the credit of being the first cultivator of it, but that of having been the most persevering one, to which I was driven by finding it *condemned untried* by so many people. I find the leaves excellent food for my cows, when thrown on grass land; and I give them the roots between the finishing of turnips (say the middle of March) and the beginning of grass. If I have straw to keep them tolerably clean, I feed them in the farm-yard; if not, on

my poorest grass-land, and they prefer them to the freshest grass, and shrink in their milk when they cease to have them. If the remaining stack is in my way I frequently remove the roots into an empty building for the convenience of feeding my swine till the following harvest. I have sown *Mangel Wurzel* and Swedish turnips in drills alternately, and every *Mangel Wurzel* has been bitten by the hares and rabbits, and not a Swedish turnip touched. I have further covered up a wheel-barrow full of *Mangel Wurzel* with a cart load of Swedish turnips, and my cows have turned over the latter to get at the former, as horses do cut-straw to get at oats, and swine will leave a corn-stack to get at them." This is a sufficient criterion of the preference different animals give to this root, and their eagerness to obtain it.

The late SIR WILLIAM JERNINGHAM is considered as the first who brought the Mangel Wurzel into repute in Norfolk, by the circulation of a French pamphlet, upwards of twenty years ago, which he brought with him from France; wherein it is strongly recommended as an article of cultivation. The most considerable grower at present in Norfolk, is R. C. HARVEY, Esq. of *Alburgh*, who applies it chiefly for the fattening of his bullocks, and he has favoured me with the following account:—"Although I do not occupy a large farm, still the soil varies very much, and, in order

to procure the produce of *Mangel Wurzel,* I have grown it upon *light, strong, wet,* and *good mixed soil land;* the latter is far preferable, and next to that is the light land, if you have a tolerable depth of soil. I had last year, upon my best land, *forty-seven tons fifteen hundred;* upon the light about *forty tons;* upon good strong land *thirty-seven tons,* and upon the wet cold land not more than *twenty-five tons* per acre.—Respecting the quality it is beyond a doubt superior to any other root known in this County; Bullocks, Sheep, or Pigs will leave every other root for it (except for the first three or four days.) It is generally sown with the intent of laying up till the Spring of the Year, but the quantity I generally grow would take up too much time and room to house or stack the whole of it, and as I Summer-feed from 60 to 70 bullocks, I want those for Smithfield in February. I therefore eat my *Mangel Wurzel* first, giving the tops to the sheep and cows, which are generally two or three days before they eat it freely. I had last year 54 Scots did the most, fed in that way, of any I ever saw. I had two which I fed almost entirely upon *Mangel Wurzel,* they paid me £.52. 10*s*. for seven months keep. —I consider the Bullocks do quite as well at Mangel Wurzel, as at oil-cake.—I have been and still am a considerable grower of Swedish turnips, but could never grow more than two-thirds of the weight the *Mangel Wurzel* would get per acre."

In *Hertfordshire* it was first introduced amongst the tenantry of the MARQUIS of SALISBURY a few years ago, and who have ever since been growers, for the sole purpose of feeding and fatting of cattle. A better proof of its utility cannot be given than the following extract from a letter (now before me) which I received from a Gentleman who is a considerable grower:—"It saves," he says, "all the expence of oil-cake to those who wish to fatten their cattle, *Mr. Stevenson*, of *Hatfield*, having fed *forty head of Bullocks, Sheep, &c.* upon it for these four or five years past, and it only wants to be generally known to be universally cultivated."

Dear native land, how do the good and wise
Thy happy clime, and countless blessings prize!

In the Fens of Cambridgeshire the *Mangel Wurzel* has met with great approbation, and on many farms in the Isle of Ely the produce has been abundant beyond example. I feel proud with having first introduced the REAL STOCK into this part of the country; it affords an excellent substitute to feed with when other food is scarce, or considered too dear to buy, as will appear by the following account, which was transmitted to me from the Fens with an order for seed:—"I thank you for recommending the *Mangel Wurzel* to me; it is a *rara avis* with us here, but I will never be without it, it saved me the expence of buying

peas, beans, or barley last Summer to feed some store hogs; in fact, I must have parted with them had it not been for the *Mangel Wurzel.* I had no other food for them, and it would not have answered to buy; but thanks to you and *Mangel Wurzel,* my hogs did well and paid me for keeping them. My neighbours envied me my food, and regretted they were not growers of this excellent root, and even those who condemned it, (and many did without knowing any thing as to its merits or demerits) said they would not be another season without it."

The following account has been sent me from a Gentleman resident a few miles from hence, and in whose friendship I have had an uninterrupted share for many years:—"The quantity of Mangel Wurzel I grew last year answered exceedingly well indeed. I never grew any thing where the produce was so great, or my cattle did so well with. Since the inclosure of our parish we are deprived of our commons, and nearly all the grass land is converted into arable, or, in other words, "*two farms have* (like Aaron's rod) *swallowed up the remaining seven,*" and very few have not the convenience or means to keep stock for their own use. An *inclosure bill* is the seldom-erring signal of ruin to all the small farms of the parish, with a melancholy train of collateral consequences; this is a subject that ought to be considered by

even our rulers; there may be some difference in terms, but the infatuated and cruel ambition which would reduce the independent tiller of the soil to a state of servitude, would with equal apathy overwhelm thrones, and lay crowns and sceptres in the dust.

> "Where then, ah! where shall poverty reside
> "To 'scape the presence of contiguous pride?
> "If to some *common's* fenceless limits stray'd,
> "He drives his flock to pick the scanty blade;
> "Those fenceless fields the sons of wealth divide,
> "And even the *bare-worn common* is deny'd."
>
> GOLDSMITH.

The leaves of *Mangel Wurzel* kept my hogs and cows in the summer, and the roots in the winter and spring; they eat it with great avidity, and did well upon it. As an article of food for cattle it has no parallel, and is worthy of recommendation to those who have no grass land, and even the labourer and mechanic who has a little garden ground (and there is few in the country who has not) would do well to cultivate so useful a substitute, as it will afford food for a pig or cow without buying corn or hay, which is generally too dear in summer to answer their purpose to feed with, and not less so in winter."

As the turnip crop is very uncertain on many farms in almost every part of England, and subject to the ravages of the fly; that many crops are

often completely annihilated in defiance to every precaution that has been taken to prevent it, the *Mangel Wurzel* has the advantage, and may be cultivated with confidence of a crop; its nature is such that the fly will not destroy it. The use of *Mangel Wurzel* is chiefly for cattle, although its leaves are excellent to boil like spinage throughout the summer, and the fleshy stalks of the leaves to dress in the manner of asparagus; the leaves are likewise good in soups, &c.

The extraordinary produce on several farms in this and adjoining counties will appear wonderful to those who have never seen it cultivated. The average quantity of food produced on several farms is FIFTY-FOUR TONS, or 2650 *bushels per acre.* Suppose an acre of land divided into rows 18 inches asunder, and the plants of *Mangel Wurzel* to be 12 inches apart, it will on computation contain about 30,000 roots, and suppose each root to weigh on an average about 5lbs. it will produce near SEVENTY TONS; by this it will be proved that an acre of *Mangel Wurzel* will more than double the weight of that of turnips, and by distillation will produce nearly *half a ton* of good grained sugar, and 150 *gallons* of rectified spirits, exclusive of the herbage it affords for cattle and the refuse for pigs after distillation. I have been favoured with many evidences of the nutritive qualities the *Mangel Wurzel* possesses in the

feeding and fatting of *bullocks, sheep, deer, horses,* and *swine,* as well as the great weight produced on an acre, which leaves no doubt of its superior excellence to any other vegetable ever offered. Cows will fatten at the time they are giving milk, and produce butter of superior flavour and in greater quantity; all kinds of stock will be found to give the *Mangel Wurzel* a decided preference to either turnips, pulse, oil-cake, or any other food that can be offered them —

"From *Essex* lowlands, and the banks of *Stour,*
"And further far, where numerous herds repose,
"From *Orwell's* brink, from *Waveny,* or *Ouse.*"

BLOOMFIELD.

CAUTION.

To guard against the many *spurious* kinds of *Mangel Wurzel,* of which there is a plenty, and which has hurt the reputation of the TRUE, it is necessary to notice that the NEW and IMPROVED STOCK was first discovered by a Clergyman in the county of Suffolk, about eight years ago, and is in form similar to the Norfolk Pudding Turnip; it grows three-fourths out of the ground, is in length from one to two feet, and will weigh from TEN to TWENTY, and some to THIRTY POUNDS EACH; the colour without is red, and when cut

transversely will exhibit circular rings of red and white alternately, some perchance will be found wholly of a white colour when cut, nevertheless they are good. Dr. LETTSOM has seen some of the roots of this *new* and *improved stock*, and owns it to be of superior size and quality to that he first recommended; he informs us that on his own land, which is not favourable to the growth of *Mangel Wurzel*, the roots upon an average weighed full 10*lbs. each*, and if the leaves were calculated at half that weight, the product would be 15*lbs.* of nutritious aliment upon every square of 18 inches, (supposing them so planted) still the weight is far short of that to which the roots have attained on good ground in this County.

CULTURE.

The first object, with a view to produce, should be to keep the ground in such a state as will enable it to produce good crops; good vegetables cannot be had without good manure; *Mangel Wurzel* will grow on any land adapted to the growth of turnips, and, of course, the better the condition of the land, the greater will be the crop; manure should be well wrought, and accompanied with good tillage, which alone is of much use, and essential to cultivation.

About the middle of *April* the ground should be well dunged, and deep ploughed at least twice over, and cleaned by harrowing so as to leave the surface fine; this should be done as near the time designed to sow as can be, and if the season should be such that the ground turns up very raw and wet, as sometimes in Spring it is apt to do, a little time should be allowed it to dry, in this case the seed should be sown as soon as the ground will admit; for when the soil is too wet it binds and does harm, especially in heavy grounds, but if the land cannot possibly be got ready to receive the seed at this period, no one should be deterred from sowing even till *May* or the beginning of *June*, as many good crops have been procured after this time. To sow early is an object of practice worthy of care, as it secures a better crop, and more easily managed in the thining and cleaning from weeds.

It is proper to form a germination before the seed is sown, by steeping it in soft pond-water for 24 hours, to forward its growth, and (if necessary) to ascertain its vitality, and especially if the ground is very dry at the time of sowing.

The quantity of seed required for an acre is, if broad-cast, 4lbs. but if carefully drilled, or dibbled, 2lbs. may be sufficient. A pound of good clean seed contains about 22,000 which will

only plant about 3 roods in 18 inch drills, leaving each seed 12 inches asunder, and it is recommended to sow rather too thick than too thin, as they do best not transplanted; planted roots do not rise so much above the ground, and they retain more soil when taken up than those which continued where they were sown; the seed is best drilled in rows about 18 inches apart, and must not be covered above three-quarters of an inch deep.—The proper depth at which the seed should be sown is to be carefully observed; if too deep, it will either rot, or not thrive well; and if too shallow, it is liable to be injured by wind-drought or birds; it may be dibbled to advantage by having a stop on the lower part of the dibble to prevent the holes being made deeper than before-mentioned.

As soon as the plants are fairly above ground give them a hoeing with a carrot-hoe to kill the weeds, and a second hoeing when the roots are about the size of a radish with a turnip-hoe; should there not be a full crop, the roots at this time may be transplanted to fill up the vacancies; the last hoeing should be done carefully, leaving the plants about 12 or 14 inches apart each way; when the roots are at full size the tops may be taken off and given to cows, deer, sheep, swine, &c. taking care to preserve the middle leaves to form another head.

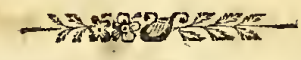
Nothing more is now to be done than to keep the land clean by frequent hoeings; take the whole crop up in *October* or *November* for winter or spring use, in dry weather if possible. The roots must be pulled up, and the leaves cut or striped off and given to the cattle, leaving the center or crown of the plant perfect; they must be cleaned from the dirt, and deposited in straw in alternate layers, and be kept under cover to preserve them from the wet and frost, or be laid up in ridges or trenches the same as potatoes, covering them with straw to keep out the wet, &c.

> "Inwardly smiling, the proud farmer views
> "The rising pyramids that grace his yard,
> "And counts his *large increase*."
>
> SOMERVILLE.

There will thus be a source of food for *horses, oxen, cows, sheep, deer,* and *swine* for twelve successive months, if required; for if in *April* or *May* the whole should not be consumed, the roots may be transplanted out for seed, and after that has ripened they will be found one and all as palatable and as good for the cattle as they were previous to their being planted out. Slice the roots with a knife, or any other instrument, and give half a bushel to a *cow, bullock, &c.* at a time, and as often as they will take it.

Nothing further can be urged in favour of this nutritious vegetable than to recommend its culture.

as *far superior* to any other ever offered, and with an extensive cultivation Old England might, Briareus-like, extend her hundred arms, and proudly declare to the world, in defiance of all who are hostile to her rights and interest, that she could exist and flourish on the production of her own land.



The curious in Agriculture, Nobility, Gentry, and Farmers in general have an opportunity of supplying themselves with Seed, warranted of the New Improved Stock of MANGEL WURZEL *on application to* THOS. NEWBY, *Cambridge.*

W. Metcalfe, Printer.

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