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AN
ACCOUNT
OF THE
CULTURE
OF
CARROTS;

And their great USE in Feeding and
Fattening CATTLE.

By ROBERT BILLING, FARMER,
at WEASENHAM, NORFOLK.

Published by Desire of the SOCIETY for the
Encouragement of ARTS, MANUFACTURES,
and COMMERCE at LONDON.

LONDON:

Printed for J. DODSLEY, in Pall-Mall, MDCCLXV.



A N
A C C O U N T
O F T H E
Culture of Carrots, &c.

THE Use of Carrots for the Winter Feed of Cattle, has been long known and practised in the Eastern Parts of *Suffolk*, where it is common to make Carrots serve the same Purpose Turnips have many Years done in most Parts of the County of *Norfolk*, besides that many, I am informed, are sent from thence to the *London* Markets; but Carrots never have been sown in the latter County, for the Maintenance of Cattle, to my Knowledge, until I tried a small Parcel in the Year 1761, and another in the Year 1762.

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I thought it prudent to make those Trials, before I became a Candidate for the generous Premium offered by the Society; the Hopes of deserving which encouraged me to venture a pretty large and unusual Expence, as well as the Loss of a great Part of my Winter Crop, and which has thus become the Means of making known, in this Part of the Country, a Species of Husbandry with which we had before no Acquaintance but by Hearsay, being above Fifty Miles from the Country, where it had before prevailed.

In the Year 1763, I sowed Thirty Acres and half by Mensuration, as nearly as I could judge, most of it having been actually surveyed; but the Survey including Hedges and Ditches, whereas I speak of manurable Land only, and the Boundaries of the Pieces being not exactly the same as those surveyed, I was obliged, by the Assistance of the Gentlemen who looked over the Land with me, and signed my Certificate, to adjust the exact Quantity, with the Help of a little Conjecture.

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This Quantity of Land lying in Three Parcels, One, of Thirteen Acres, bore Wheat in the Year 1762; One, of half an Acre only, had borne Clover; and the last, of Seventeen Acres, Turnips that Year. The Piece of Thirteen Acres is a cold loamy Soil, shallow, and upon a sort of loamy Gravel: The Half Acre is a Soil much mixed, upon a moist Clay. The Seventeen Acres may be divided into Two Parts, the One of Fourteen Acres, and the other of Three. Both are a light and dry Soil, newly improved with a Marle; the former an exceeding good tempered Soil, upon a Marle; the other a shallow black Sand, upon a kind of imperfect Grit Stone, called by us a Carr Stone.

Before I give an Account of the Success of my Crop of Carrots, and of the Use I made of them in feeding Cattle, I think it may not be improper to say something on the Manner in which I cultivated these several Pieces of Land, which I founded as well upon the best Information I was able to procure

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cure, as upon the Observation afforded me by my own Experience of the former Year.

The Wheat and Clover Stubble I split down with the Plow early in the preceding *November*; and am satisfied, from all the Observations I have made since I first begun the Cultivation, that whether the Wheat Stubble be, as we call it, Flat Work, or in Ridges, or the Carrots are to be sown after Clover or Rye-grass, the Land cannot be plowed too early, so that the Frost and Snow may have their full Effect in mellowing the Ground, for the Reception of so small a Seed; and this is more necessary to be attended to, the stiffer and tougher the Soil shall chance to be. But I let the Land that had been Turnips alone till the End of *January*, or Beginning of *February*, thinking this Time enough, because the Earth was thoroughly cleaned by the Cultivation and Summer-hoeing necessary for the Crop of Turnips; nor had I any Reason to repent of this Delay, from the Event.

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Of the Thirteen Acres of Wheat Stubble, Six were dunged for Wheat, but not for Carrots; Four and an half not dunged at all; and Two and an half for the Carrot Crop only; the Clover Land was dunged for the Carrots; and of the Seventeen Acres that had been Turnips in 1762, Part had been tathed* for the Turnips; and the whole Crop of Turnips was fed off by Sheep and Neat Cattle.

I find that Four Pounds of Seed on an Acre is sufficient; but as the Seed is very small, light, and hard to separate, and disperse equally on the Ground, I was at first a good deal puzzled how to overcome this Difficulty; and though I was advised to make use of a Mixture of Sand, I did not find it answer, because the Weight of the Sand carried it all to the Bottom of the Seed-cot: I sowed it therefore now unmixed, as we do Turnips, after having forced it through a fine Chaff Sieve by rubbing.

* Tathed, *i. e.* where Sheep have been folded.

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It will be Three Weeks after Sowing, and sometimes longer, before the Carrots appear ; this is the principal Advantage besides the difference of Expence that Turnips have over them, for the latter are not sown till about Midsummer and coming quicker to the Hoe, get the better of the Weeds more easily ; for Weeds do not grow near so fast about Midsummer as in the Spring. The Carrots lying a longer Time before they come up, and continuing afterwards a long Time very weak, they are Seven or Eight Weeks before they are fit for the Hoe, and in the mean time afford the Weeds an Opportunity to get Strength, in a Season too, when unluckily they grow the fastest ; I am therefore inclined to think, that, though it is necessary to sow Carrots before Turnips, it is better to sow them as late as you can with Safety to the Crop ; for of mine, those sown in *April* on the Clover Stubble came much the soonest to the Hoe, though later sown ; the Wheat and Clover Stubble were plowed Three times ; the Piece after Turnips but twice, the first time shallow,

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the Second as deep as the Staple of the Ground would permit, and on this plowing the Carrots were sown.

As it would remove some of the Objections to a Carrot Crop, and lighten much the Expence of weeding, could they be sown later ; and as this might be done, could the Seed be made to come up sooner ; I have sometimes thought it might be steeped in somewhat that would forward its Vegetation, and afterwards sown, when dry enough to separate.

Yet however expensive the strength of the Weeds in a Carrot Crop makes the hoeing of them, I have not observed that the Crop itself is apt to suffer ; for though the young Carrots are quite covered in a Thicket of Weeds before hoeing, and should be buried in Earth after hoeing, yet they seem no way hurt if they get clear again, as they will generally do if they are not cut off, or buried too deep for Want of Skill, in a Fortnight after hoeing.

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Our Hoe is Six Inches wide ; if the Carrots chance to be tolerable clean they may be hoed the First time for Eight Shillings *per* Acre ; but if much Rain, the Foulness of the Ground before sowing, or the Length of Time between the sowing and hoeing, or all these Things together, have filled the Ground full of Weeds, the Expence of the First hoeing will Amount to Ten or Twelve Shillings *per* Acre. About Ten Days or a Fortnight after hoeing, I harrow them, which will displace the Weeds and prevent their growing again, which many of them will probably otherwise do, especially if it be showery Weather, the harrowing does not hurt the Carrot Plants ; but on the contrary does them much Service, by bringing fresh Earth to them, as well as killing the Weeds.

About Three Weeks after the harrowing, in case it has not perfectly cleaned the Ground of Weeds, or in case new Weeds come up, I hoe the Carrots a Second Time, which costs me about Four or Five Shillings *per* Acre, as the Ground is more or less foul ; and
after

after this if there still remain any Weeds, which will be the Case if much Rain falls in the Time of the Second hoeing, I follow it with a Second harrowing.

I have however more than once observed, that where the Weather has been favourable, and those I have employed to hoe have done their Duty, that the Carrots once hoed and harrowed have been as clean as those on which I have bestowed Two hoeings and as many harrowings.

I come now to the Success I had in the Year 1763, on the several Parcels of Ground I First described. My Carrots proved best on the Piece of Two Acres and a half that had been Wheat, not dunged for the Crop of Wheat, but dunged for the Crop of Carrots, and on the half Acre Clover Stubble dunged for the Carrots. I measured many Carrots out of both Pieces Two Feet long each Root, and in Circumference at the upper End, those on the former from Twelve Inches to Fourteen, and on the latter from Twelve to Sixteen

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teen Inches; a Difference of Bulk owing perhaps both to the Difference of Soil and the Effect of former Crops.

On the Two Acres and half I compute I had from Twenty-two to Twenty-four Cart Loads *per* Acre, and about Fifty-five or Fifty-six Cart Loads on the whole; the half Acre on Clover Stubble produced me about Twelve Loads, the Six Acres and half dunged for Wheat, but not for Carrots, produced from Eighteen to Twenty Cart Loads *per* Acre, and in the whole about One hundred and Twenty-four Loads; the Four Acres not dunged for either Wheat or Carrots, produced from Twelve to Fourteen Loads *per* Acre, and in the whole make Fifty-two Loads.

I had but an indifferent Crop of Turnips the preceding Year, on the Seventeen Acre Piece, but had from Sixteen to Eighteen Cart Loads *per* Acre of Carrots on Fourteen Acres of it, but a very poor Crop on the Three remaining Acres; so that I compute I might have on the Seventeen Acres after Turnips not quite

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quite Two hundred and Seventy Loads, which make, with the former, about Five hundred and Ten Loads of Carrots, equal in Use and Effect, to near One thousand Loads of Turnips, or Three hundred Loads of Hay, as Experience has convinced me in the various Ways I have tried them.

I do not think it is improbable I might besides lose Five or Six Loads, which the poor People took from me instead of a single Load they might have stole, had the Land been with Turnips; but this Loss will evidently be much lightened should the Growth of Carrots become general in the Country.

I have found the best Method of drawing the Carrots, to be with a Four-tined Fork, with which a Man breaks the Ground, Six or Eight Inches deep, very carefully without injuring the Carrot; and is followed by a little Boy who gathers the Carrots and throws them in Heaps.

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I began to draw my Carrots for Use about Three Weeks after *Michaelmas*; but as the Cattle I meant to feed on them had never yet been used to so hard a Feed, I thought it best to give them at the same Time, both Cabbages and Carrots, lest they should suffer by a Distaste at the Beginning

I had about Forty Loads of Cabbages growing on One half Acre, equal in Use, as appeared to me on Trial, to about Seventeen or Eighteen Loads of Carrots. I observed that Cattle of every sort naturally eat the Cabbages as readily as they would have done Turnips, and soon after having gradually learnt to eat Carrots, began to prefer them; I brought both the Cabbages and Carrots, and afterwards the latter with Turnips, from the Place where they grew, to a Pasture Close, and without any other Preparation than shaking off the Dirt, dispersed them on the Ground for the Cattle to feed on promiscuously.

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I well know, from the Experience I have had in fattening Cattle on Turnips in Houses or Stalls, that by this means the Carrots might have been made to go a good deal further; but besides the great Trouble attending this Method, especially if the Number of Beasts be great, and the Hazard of the Beasts foundering in their Way to *London*, an Accident that often happens to Stall-fed Cattle, and that the Benefit of their Stale is lost to the Ground, I am convinced the Beef is not so good, though perhaps more fitly.

The first Stock I began to feed in this Manner, were Twelve Neat Beasts, and Forty-nine Shearing Wethers, that is, not quite Two Years old, Ten of the former were *Norfolk* bred Steers, and began to feed on the first Carrots I drew; at the same Time I put on a Cow and a Heifer Three Years old; at Old *Martinmas* I bought Seventeen *Scotch* Bullocks; which, with a Cow from my Dairy, made up the Number Thirty; and soon after I increased this Number to Thirty-three, by adding Three more from my Dairy.

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I should observe, that when the Cabbages were spent, I allowed a Load of Turnips each Day for some Time for this Stock of Cattle, which, with Three Loads of Carrots, was a sufficient Provision for them. This enabled me to determine that One Load of Carrots is nearly equal to Two of Turnips; for of the latter it would have cost me little less than Seven Loads, computing on the Experience of many Years fattening Cattle with Turnips; yet I never knew Cattle thrive faster; Nine of the Steers were sold fat in *Smithfield* the 17th of *February*, and weighed about Forty *Norfolk* Stone, that is Seventy *London* Stone each. Another Steer and Cow were killed in the Country, the last in our Town, which died very fat, about the same Time: The *Scotch* were sold at *St. Ives* the Beginning of *May*: The Steers sold in *Smithfield* for about Seven Pounds Fifteen Shillings each. I was told the Market was then low there; I therefore sold the *Scotch*, all but One, at *St. Ives*, where they rendered me about Seven Guineas each. The former cost me about Four Pounds Ten Shillings each; the latter Three Pounds Fifteen.

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Fifteen. The other *Scotch* I sent to *London*, where, though it weighed but little above Sixty Stone, it sold for Eight Pounds, and was said to be some of the fattest Beef killed in *London* that Winter, as the Salesman Mr. *Brownsworth* informed me: The others were not inferior. The Forty-eight Wethers were sold fat at *St. Ives* in the Month of *May*, for about Fifteen Shillings each. I compute therefore, these Thirty-three Beasts and Forty-eight Sheep rendered me Profit about One hundred and Twenty Pounds; out of which, allowing One Tenth for the Share the Cabbages and Turnips had in fattening them, which is rather too much, especially as the Cattle soon began to leave the Turnips, there remains One hundred and Eight Pounds to be carried to the Account of the Carrots.

But the large Quantity of Carrots I had growing, gave me an Opportunity of trying their Use in feeding Dairy Cows, Sheep, Horses, and Hogs.

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In the Month of *April* I found I should have Nine or Ten Acres to spare, beyond what was necessary to compleat the fattening my Bullocks. This happened too at a Time when my Turnips, as well as my Neighbours, began to decay, and enabled me to supply that Defect, to which we are very subject in the Spring of the Year, and which no Method of managing our Turnips did ever exempt us from, when the Weather is wet and frosty by Turns; and from this Decay the Carrots seem protected by their Hardness. From this Time I fed my whole Dairy of Thirty-five Cows, and my Flock of Twenty-one Score of Sheep, on Carrots.

At the same Time, I thought of a Method of getting the Carrots out of the Ground with more Ease and Expedition than I had before done, which was of great Use to me, when I had other Occasions for my Servants, besides that it prepared the Land better for the ensuing Crop.

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I plowed them up with a Narrow-sharred Wheel Plow; going slow, the Share opened the Earth, and cut very few of the Carrots. Those few were such as chanced to meet with the Point of the Share. The Plat, or Earth-board, turned most of the Carrots out of the Ground, and by harrowing afterwards, were most of them quite cleared from the Earth; although the Roots extended a good way into the ground, and below the Pan, I did not find it necessary to plow so deep, and consequently the Land suffered no Damage, which otherwise it might have done, as some few of the Carrots, instead of being turned out, were buried; at the same Time it was necessary to plow the Land and harrow it a second Time; and though this should be at an Interval of a Month, the buried Roots will take no Harm.

I turned my Dairy of Cows and Flock of Sheep on this Land after the plowing, without any further Trouble or Preparation, and had all the Reason in the World to be pleased with the Event; both took readily to eating the Carrots, though I think the Cows most

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to. These last, not only all of them gave more Milk than usual at this Time of the Year, but many of them continued to give Milk, which would, with such Turnips as we had to give them, have been nearly dry; the Butter made was likewise much better than from Turnips, and both Sheep and Lambs did much better, than I ever remember them to have done at this Season of the Year; besides this, the Land received great and manifest Improvement from the State of the Cattle, of which I found the Benefit apparent in the succeeding Crop. And besides it is proper for me to observe, that in this Method, some few of the Carrots will continue buried even after a second plowing; but these were turned out upon a third plowing when we sowed our Barley, and were clean eat up by the Flock of Sheep, without the least Injury to the new-sown Barley. In this Manner the Cows and Sheep were fed for three Weeks, which I value at above Twenty Pounds; and considering how I might have suffered had I wanted Turnips, and not been able to supply the

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Want with Carrots, I might value this Feed at a good deal more.

I began in *November 1763*, to feed Sixteen Horses, which did all my Farming Work, with Carrots; they had neither Hay nor Corn, except the Team that carried out my Corn to *Brancafter*, a Sea-Port at Fifteen Miles Distance; to this Team I allowed a Bushel of Oats a Day for the whole Team, the rest, besides Carrots, had nothing but Pease, Straw, and Chaff, until the sowing Barley, in *April*, I increased their work so much, that I thought it necessary to give them a few Oats: but they continued chiefly to subsist on Carrots, until they were turned to Grass the latter End of *May*. I never knew my Horses in better Order, or do their Work better; and they were so fond of Carrots, that I frequently found, that when the Team I spoke of before were so fatigued that they refused to eat their Corn, they would eat it mixed with the Carrots chopped. This brings me to observe, that for my Horses I always chopped off the the Heads and Tails of the Carrots, and sometimes

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sometimes gave them another Cut. Though I could not find it was necessary, I washed them too for the Horses; none of which Trouble I found at all necessary, or even useful, for other Beasts; the gathering and removing the Carrots, and dispersing them about the Pasture Land where I fed the Beasts, the Weather clearing the Roots, were sufficient.

I gave the Sixteen Horses Two Loads of Carrots every Week; and these Two Loads I compute saved me more than a Load of Hay: This Saving was for Twenty-eight Weeks, so it saved me Twenty-eight Loads of Hay, which at Twenty-five Shillings a Load, amounts to Thirty-five Pounds.

To this I might add the Benefit received by Swine, to whom I threw all the Tops and Tails of the Carrots used for the Horses; and they thrive exceedingly, and were so fond of them, that I could never find that any Dirt that might stick to them prevented their eating them: But as the principal Part

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of the Food of the Swine was Milk at first, and afterwards Pease, I have not set any Value on this Part of my Profit, the Value of what I have estimated it on the other Articles amounting to One hundred and Sixty-three Pounds.

Of the Thirty Acres and half Four were sown in the present Year with Oats, all the rest with Barley; the Four Acres was Part of the Land where I plowed up the Carrots, the rest of this Piece was sown with Barley; both were a prodigious Crop, not less than Three Loads of Corn in the Straw *per Acre*; on the rest of the Land my Crop was less bulky and shorter, yet very good, perhaps not less Grain than the other. And here it may not be improper to mention, that when in a former Year I had sown the Two Ends of a large Close with Carrots, without Dung, and the Middle with Turnips, for which the Land was well dunged, yet, when the whole Inclosure was the next Year sown with Barley, that after the Carrots was the best.

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Another Recommendation of Carrots is, that I find them a more certain Crop, both for Growth and Duration, than Turnips; the latter are exceedingly apt to fail, as well as rot, towards the Spring, when we most want them. Perhaps the former is in some Measure owing to our Lands being, as we may say, surfeited of Turnips, to which they have been so long accustomed. This is the Conjecture of some of our most experienced Farmers; but if otherwise, there are many Reasons for chusing both; that if one fail, we may rely for so necessary a Winter Provision on the other.

I ought not however to conceal, that at First beginning of a new sort of Husbandry, many Difficulties stand in the Way; the Expence is very heavy, much beyond the Expence of Turnips, and is perhaps increased by the Awkwardness of labouring Men and Servants, who are both ignorant and perverse about most new Employments: besides this, the cleaning of Carrots from Weeds is much more necessary than

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than of Turnips, and yet goes on much slower, so as sometimes hardly to be compleated; besides this, if a long continued Frost should happen, it will be very difficult to get Carrots out of the Ground; (it is true, the Turnips in this Case are apt to spoil,) but this Inconvenience may in some measure be prevented, by drawing the Carrots beforehand; tho' this will be difficult to do, to the Amount of Fifty or One hundred Load.

Thus have I given a faithful and exact Account of every material Circumstance that has occurred to me in relation to the Culture and Use of Carrots, for the feeding of Cattle; I am sensible that more extraordinary Things may be boasted of, upon the most careful Attention a diligent and curious Man may be able to bestow on Two or Three Acres only; but besides, I have been careful to avoid Exaggeration in every Particular; the large Quantity of Carrots I raised in the Year I have spoken of, has given me an Opportunity of judging fully, and without Danger of any considerable Fallacy, what may be expected from

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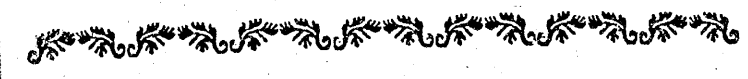
the common Use of Carrots in feeding every Species of Cattle on them, in an extensive Way of Farming. I have this Year Twenty-four Acres and half growing, for the Use I applied the other to; the Effect and Profit of which, together with such further Observations as shall occur, I will reduce to Writing, for the Perusal of the Gentlemen of the Society.

*Weasenham, All Saints,
November 21, 1764.*

ROB. BILLING, Farmer.

I believe the Contents to be true,
JOHN FRANKLIN, Vicar.

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A C C O U N T
O F T H E

Soil, Culture, Time of taking up,
Produce and Effects of Twenty-
four Acres and an half of
Carrots, for which my Certifi-
cate was granted in the Year
1764.

THE said Twenty-four Acres and an half
is all in one Inclosure, and the Land
all in Quality much alike, a close cold Sand,
upon a sort of loamy Brick Earth, a little
gravelly. In the Year 1763, the Land bore
Pease: In the Beginning of the following
D 2 Winter,

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Winter, I plowed up the Land as deep as the Soil would permit, in order to receive the Benefit of the Frosts and Snows in mellowing the Land, and plowed it twice more before I sowed the Carrots; but having the best Crop of my latest sown Carrots last Year, which was about the Middle of *April*, I did not sow these last till the Beginning of *May*; which I find, by the Scantiness of my Crop, was too late. It was about Seven Weeks from the sowing to the Time of hoeing. Our Hoe is Six Inches long, and if not very foul, I have them hoed for Eight Shillings *per* Acre. The Care in hoeing is only to cut the Weeds, and leave Carrots enough growing; for though the Carrots, many of them, are buried with Mould or Weeds, they will get through in a few Days, without Hurt. If much Rain follow soon after hoeing, it will be necessary to harrow them, about Ten Days after hoeing, to displace the Weeds, and prevent their getting root again. About a Fortnight after the harrowing, if much Rain should come, it will be necessary to hoe them a second

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cond time, which costs about Four Shillings *per* Acre; and after that, if much Rain should come soon after, I harrow again. The harrowing does not pull up One Carrot in a Hundred. The fore Part of last Winter I dug them up with a Four-tined Fork, a Man breaking the Ground with the Fork, Four or Five Inches deep, and a little Boy to pull them up, and throw them in Heaps. Towards the Spring I plowed them up, having a Share with a narrow Point, which answers very well; which Method I now follow: I have plowed up all this Year's Growth. The Plate of the Plow does gradually raise the Mould, and draw up the Carrots, except a few cut with the Point of the Share, then I harrow them out; which plowing and harrowing are no Expence, the Land being got in Order by that means to sow with Corn. Some of the Carrots will not harrow out the first plowing; they will turn out on harrowing after the second plowing. The feeding them on the Land where they grow improves it greatly. I believe the Quantity of Loads *per* Acre, to take the whole Piece through,

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is about Ten Loads *per* Acre, this having proved an unkindly Year, besides that they were sowed too late. I have given Two Loads a Week to Eighteen Horses, to which I allowed no Corn or Hay, except one Team, which carry out my Crop at Fifteen or Sixteen Miles Distance, till about *April*, at which Time our Work comes on generally in a great Hurry. My Horses are in as good Condition as in former Winters, when they have eat Forty Loads of Hay, and Two or Three Loads of Oats more. I have kept about Forty Cows and Three hundred Sheep on them a Fortnight past, and I expect that I have enough remaining to keep them a Fortnight longer. My Cows give Plenty of Milk, which makes fine pleasant tasted Butter; and my Sheep and Lambs thrive exceedingly, which now, with only Turnips, would do very poorly. I have Fourteen weanling Calves I keep chiefly with Carrots, which thrive wonderfully; and about Thirty Hogs have been kept chiefly on them several Weeks past.

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I have now been less particular in my Account of the Culture and Management of Carrots in general, because I have enlarged much upon the Subject in another Piece, transmitted before to Dr. *Templeman*, founded on my Observations of former Years.

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