RHUBARB CULTURE

BY
FRED S. THOMPSON

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FRED. S THOMPSON.

RHUBARB OR PIE PLANT CULTURE.

ILLUSTRATED.

THE BEST VARIETIES.

Essential Points in Growing Good Rhubarb.

HOW RHUBARB PAYS, COMPARED WITH
CERTAIN CROPS.

THE FIRST AND ONLY EDITION ON THIS SUBJECT.

BY

FRED. S. THOMPSON,

BAY VIEW, P. O. Box 24,

MILWAUKEE, WISCONSIN.

Supposed to be the largest grower in America of this great pie-producing plant, raising yearly one hundred and twenty-five tons or over, which would take at least one hundred and twenty thousand pounds of sugar to sweeten it.

MILWAUKEE, WIS.:
J. H. YEWDALE & SONS CO., PRINTERS.
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Preface.

In writing this little treatise to the public, I hope it may be the cause of encouraging and assisting my fellow friends and gardeners, as well as farmers and amateurs, throughout the globe, to grow this most profitable vegetable. And I earnestly invite the careful perusal of this treatise, by market gardeners who are near cities and large towns, where a market for this product can be found, that will greatly reward the grower. Of all the early vegetables that find their way to the market in early spring, there is none that receive so great a demand as this most useful and wholesome plant. Since its introduction in England, from Padua, early in the seventeenth century, and afterwards into this country of which we have no authentic account, it has steadily grown in popularity as a delicious and indispensable plant for culinary purposes. People, rich and poor alike, seldom do without it. Although it is a cheap and common article of food, it steadily grows more in demand. I am glad that it does, for it not only fills the place of a delicacy, but if at times freely and properly used, it has a medical action upon the constitution as well, and may save much expense and advice from physicians. What makes it more valuable to the consumer is its great bulk for little expense, and many people may not yet be aware that they might not only save this trifling cost, but have it in their little gardens, where it could be had

PREFACE.

fresh at their will, which is the most important object in the flavor of all vegetables, if they only had a little experience, in its simple, and most profitable culture. This is one reason why I have written this little treatise, to place before the public. Now, as Rhubarb, or "Pie Plant," as it is commonly called, is becoming one of the most popular and extensive plants grown, it should receive more attention towards its good merits, and exceedingly more in growing it, by all gardeners, as well as by private families and farmers. It is now grown and cultivated largely for market purposes, in and around all large cities and towns, and even few private families are without it. It is a plant that may be adapted to almost any soil, providing the conditions and opportunities offered, either existing naturally or artificially applied. Being a hardy perennial plant, it may be grown on the same ground for years without renewal by special care being given. The soil most suitable for Rhubarb, as for most root crops is a black sandy loam; whatever the soil may be, it should be loosened very deeply to have success. I quite frequently receive letters from my fellow gardeners besides those who are ordering roots, asking for information on growing Rhubarb. As it is impossible to give a sufficient knowledge of growing by letter, I send out this little treatise in which I hope I have covered everything pertaining to this subject that is necessary to insure success.

RHUBARB CULTURE.

THE ORIGIN OF RHUBARB.

THE Rhubarb commonly grown for commercial purposes under the name of Pie Plant is called by the botanist "*Rheum Rhaponticum*"; it is also called English Rhubarb and is a native of southern Siberia in Asia. Having been cultivated early in the seventeenth century at Padua, whence it was brought to England, the first plant being raised there about the year sixteen hundred and twenty-eight. It is also grown for medical purposes. The real source of the Russian or Turkey Rhubarb, however, is "*Rheum Palmatum*," first found wild in China in eighteen hundred and seventy-three. Another species furnishing commercial Rhubarb is "*Rheum Officinale*," also a native of China. There are also many garden varieties of "*Rheum Rhaponticum*," as plants from seed show a great deal of variation.

SELECTING THE SOIL.

Until recently it was supposed that Rhubarb was adapted to a black or sandy loam, but being an exception to most all other roots it does well on any ordinary soil, if drained artificially or otherwise, and properly cared for. For early picking in the spring

it should be set out in a black sand or gravelly soil; if possible, on a side hill facing the southeast. In this location it will keep off the cold north winds which prevail during its early growth, and it will also receive the full benefit of the spring sun. Set out under these directions, and manured heavily in this latitude, it will be ready for market the latter part of April, when it will bring an exceedingly high price. For later picking I prefer a black or clay soil, the former producing a little earlier and more abundantly, but not quite so large. On the whole, I would recommend a black sandy loam, although a clay soil is exceedingly good, and preferred by some, to using their best ground for Rhubarb. If the soil is light and rich the roots grow very rapidly; so as the roots increase in size the stalks diminish; when the latter becomes apparent, the roots should be trimmed. There is a great improvement on the old method, as when the roots got too large, they would dig them up and re-set a new bed. This requires a great deal of extra labor, also a loss of ground for two seasons, in recrusting the new bed. After a bed is once set out, the former is now entirely done away with and trimming is universally resorted to in keeping up the bed. When necessary to set out in low wet ground, it should be well drained, ditches being from two and a half to four feet below the surface and as wide as you think necessary. In these, two-inch tile should be placed, close together on a gradual fall towards the outlet, covering each joint with clay or sod. Do not cover with sand until you have finished the former or the sand will be apt to fill up the tile. If the land is marshy or receives

great quantities of water from other sources, three or four inch tile may be used in the same way; these are more expensive and are not necessary in common drainage. A much cheaper and quicker way of draining is done by using hemlock boards: these may often be obtained when the common tile can not. These boards are six inches wide, one inch thick and any length to suit drain, generally sixteen feet long. Nail two boards edge to edge or in the shape of a letter V, putting the wide part down; on the top part of the drain, representing the top of letter V, should be nailed two-inch cleets accross the

drain every four feet apart, this making it the shape of a triangle. These may be laid in the ditch, flat side down, filling as before. Where a private road crosses such a drain or in fact any artificial drain, boards or planks should be placed over the drain, to distribute the pressure before putting on the soil. This is a much cheaper and easier way to drain, being practiced by many. The boards will usually last from ten to twenty years, although when they rot the drains are seldom rendered useless as the water settling through the ground, packs the soil so tight over the boards that it leaves an opening the same size as before; the general opinion is, that tile will last the longest. But I think there is little difference in their age. In very sandy soil or in quick sand, tile is preferable. Board drains may also be

made square or triangular, similar to Fig. No. 2, only nail the bottom boards on lengthwise which is much quicker than nailing them crosswise and will answer, I think as well, as I have tried them in all shapes. Draining is an important object in raising Rhubarb or any other agriculture crop and should be well and thoroughly done in all and every part; it is very costly and if only one obstruction should occur, weeks of hard work might be lost. If you intend to use sod or pasture land, it should be worked at least one season, allowing the sod to thoroughly decay; Clover sod or rye ground, worked one season previous, is excellent.

PREPARING THE SOIL.

As there are so many different soils and sub-soils, and all being treated not alike, I will attempt to state the full particulars of each. When sand or gravelly soil is to be used in the spring it should be heavily manured with well rotted barnyard manure or muck. Plowed deep early in the spring. It may then be harrowed and crushed and is then ready to set out. I would recommend the "All Steel Flexible Harrow" for this purpose, which is shown in Fig. No. 3.

If it is to be transplanted in the fall, an early crop of vegetables is generally raised, such as early peas, early sweet corn, early potatoes, etc.; otherwise it may be treated *vice versa*. Sod or pasture land should be plowed deep and cultivated at least one season before setting out the roots, to allow the sod to thoroughly decay; if not the sod will give trouble in the young bed and be a nuisance in digging the holes for planting. The following figure represents

Fig. No. 3.

Buffalo Pitts' All Steel Flexible Disk Harrow.

Sold By Hirsch Bros., Milwaukee, Wis.

the plow which may be used for this purpose, or any other similar to this.

Fig. No. 4.

Scotchman Plow.

Sold by Hirsch Bros., Milwaukee, Wis.

When a hard clay soil is to be dealt with it must be heavily manured with coarse barnyard manure, muck or hops partly decomposed, plowed deep and left to decay. When once decayed it will leave the ground light and appliable, when it may be harrowed with a disk harrow and leveled with a drag which is represented in Fig. No. 5. It can now be crushed and the rows marked.

Fig. No. 5.

Smoothing Harrow Drag.

Black loam should be treated in like manner, using any good manure or fertilizer that can be had. A top dressing of wood ashes, say fifty bushels to the acre, or old composts, bone meal or hen manure would be very beneficial and ought to be used in all cases when it can be had at a reasonable price.

SETTING OUT THE ROOTS.

Transplanting Rhubarb in beds forming new plantations is of considerable importance. The cost of the roots, whether bought or raised, the size and healthiness of the roots or buds to gain rapidly and produce fine beds, the state of the soil, the proper season and the proper way to transplant them is sufficient advice of the necessity to have every part properly performed when forming permanent beds to continue from ten to twenty years or more, and produce profitable crops.

Two more important objects are to have them at a proper distance apart and to have the plants or buds from a division of the old roots. These will grow much quicker than those grown from seed. Rhubarb roots are very vigorous and will often grow when entirely out of ground. Although this is true the roots should receive good care when transplanting, and as well after for one or two seasons. The young roots or buds may be set out in the spring or fall, or even in the early part of summer, according to the condition of the soil, or the necessity of having it for market at the earliest possible date. In the south, fall is preferable on account of the rains. The roots should be set out not less than three by four feet, and if more ground can be spared I would advise four by

four feet. As it is a monstrous plant it needs plenty of room for nature to grow it, and besides it is much handier when picking for market. Whatever may be the distance, the weight of the crop is about the same, if the hills are only kept at a proper distance apart; but crowded Rhubarb beds produce late and smaller crops of very inferior quality and appearance, besides they are much more quickly exhausted. They require more manure and their cultivation is much more difficult and costly. We have therefore everything to loose and nothing to gain by not planting the roots at a sufficient distance apart. The rows can be set straight by using a line or reel, which is quicker than marking out with hand or horse-markers. Reels can be bought very cheap. Fig. No. 6 represents a garden reel such as most commonly used. A line for this purpose may be made by simply attaching a rope or sheep twine to two sharpened

Fig. No. 6.

Garden Line Reel.

sticks to be stuck in the ground, one at each end of the intended row, and pull the rope tight to make it straight. The rows may be made any length desired. There should be eight in width in each bed. When necessary to have several beds together, an alley of eight or ten feet, "the larger the better," should be left between each for wagon purposes. The two most essential things for leaving an alley are: First, manure can be hauled in the winter or early in the spring, thrown in piles along the alleys and left there until the frost comes out of the ground, when it can be spread in

the furrows with forks or used for mulching. This will not retard the growth of the plant as it would if hauled on the beds in the winter, which would keep in the frost and make the crop late, or to haul heavy loads over the beds in the spring when the frost is coming out, would be likely to cut in and injure the roots. Second, there must be some way to convey the Rhubarb, after it is pulled, to a shed or some other convenient place, where it can be fixed for market. So when several beds are grown together, it is necessary to have an alley between each of them. This way it may be pulled and laid in the rows next to the alley, where it is gathered with a wagon and carried to a place for tying. The holes to transplant in can be made with a spade, a shovel, or a hoe, the former being the best and quickest. After the soil is prepared and the roots are divided and trimmed, which will be explained in the following section: The buds may then be set out, first mixing with the soil two or three shovels full of well-rotted manure for each plant. As the roots are inclined to grow up, the crown should be set level with the surface. A hoe can be used to pull in the dirt around the roots, pressing it down with your hands or feet firmly, which will tend to hold in the moisture. Always draw on a little loose dirt after pressing, to keep the soil from cracking. The stalks from the new bed should not be pulled until the third season, then a crop may be marketed that will reward all labor that has been expended. Rhubarb is generally propagated by dividing the roots which grow in clumps, each eye or bud being attached to a root, which on separation forms a plant. Setting out a great many

in this way is very expensive for new beginners, as the roots are rarely to be purchased under one hundred to one hundred and fifty dollars per one thousand plants, and as about two thousand, seven hundred and twenty-two plants are required for an acre, quite an outlay is necessary. This expense may be diminished by raising the plants from seed, instead of dividing the old roots. It is now generally known that this useful vegetable can be raised from seed nearly as quick as by planting the roots. In the north seed may be sown in the open field or garden the latter part of April, in drills sixteen inches apart, if the plants are to be reset again. If you intend to leave them where they are sown, the rows must be four feet apart and the plants thinned out to three feet in the row. This plan requires the occupation of the land too long and should not be practiced. The best way is to sow in drills fourteen or sixteen inches apart and reset them when they are one year old. As the seed is very slow to germinate, the ground should be well rolled after seeding to hold in the moisture. The most suitable soil for a seed bed is a black, sandy loam, enriched with old composts or well-rotted barn-yard manure. This should be well pulverized and loosened, leaving the soil as level as possible before sowing. Plants from the seed bed should be reset at one or two years old (one year old plants preferred), in their final beds either in the spring or fall. In this latitude I would recommend the spring or very early in the fall (about the latter part of August), so they can recruit up in their new beds before cold weather appears. The first and second seasons after planting no stalks should be picked,

as it weakens the roots, but the third season a full harvest may be expected, if proper attention has been given to cultivation. The productiveness of the bed, whether set out by the division of the old roots or roots raised from seed, will continue for twenty years by this wide system of planting, recourse being given to manuring freely annually by

Fig. No. 7.

Roots from division of
the old hill.

Roots propagated from
seed.

digging or plowing it in around the roots before the crop has started to grow, or in the fall after the crop has been marketed. No reliance can be placed on the seed producing the identical variety of its parent. Fig. No. 7 represents roots from seed and roots from division of the old hill.

MANURE AND HOW TO APPLY IT.

Rhubarb, as with all other roots, delights in the richest and greatest quantity of manure, you can give it. It is a rank feeder, and therefore, profitable and marketable. Crops cannot be grown unless you supply their wants. This is one of the most important points in Rhubarb culture, and in fact, all other vegetables. See how long you can live without eating, or how long you can keep up your vitality with little food that is not digestible. Although vegetables cannot talk and tell you their wants, or you cannot see them eat, it is of as much necessity to feed them as it is yourself. It is the second coat of manure you put on your land before you plant it that gives you the profit. You can put a thousand pounds of bone meal on an acre of potatoes and get a fair yield, but if you increase it twice, and put on two thousand pounds per acre, then you can see the profit, therefore the more highly the cultivation is performed, the more productive the crop will be. Chemists tell us that there is a difference in the composition of all roots and that there is a place therefore for special manures. Although their composition is so nearly alike, animal manure which contains a greater or less proportion of the required element substances, but not in a sufficient and digestible form, for certain vegetables. This may be remedied by applying certain special fertilizers having the required elements needed. As for an example, Parsnips contain:

46.7 Potash, 2.7 Soda, 15.7 Lime, .6 Magnesia, 1.3 Oxide of Iron, 15.8 Phosphoric acid, 5.6 Sulphuric acid, 2.4 Silica, 4. Chlorine.

Now, fresh horse manure analyzed is found to contain:

71.3 Water, .5 Nitrogen, 10.5 Silica, .7 Oxide of Iron, .5 Lime, .4 Potash, .1 Soda, .5 Phosphoric acid, .1 Chlorine.

Barn manure is here lacking in food of three needed elements, Phosphoric acid, Potash and Lime. Now for parsnips after applying a certain amount of barn manure, it should have a mixed chemical fertilizer containing the three essential substances missing, Potash, Phosphoric acid and Lime. Mixed fertilizers especially prepared for all kinds of vegetables can be purchased from several reliable firms, such as the Bouker Fertilizing Company of Boston, Mass., Mapes or Baker Fertilizing Company of New York, also Johnson & Co., Soap Manufacturers of Milwaukee, Wisconsin. Rhubarb leaves and stalks do not contain a great deal of fertilizing matter, probably less than one-third per cent. of Nitrogen, less than one-fourth per cent. of Potash and less than one-eighth per cent. Phosphoric acid. Still, as we want a great quantity of produce from a given area and this produced within a few weeks time we will see the necessity of making the soil rich in all kinds of plant food. Potash probably will be as necessary as anything and as much as nitrogen, a compost of night soil, muck and hard wood ashes will be of especial benefit, but any kind of good complete manure such as old compost will be of especial benefit if it is only put on in big enough quantities.

Clay soil, black heavy soil, or shallow soils having a hard sub-soil or any ground having the texture of the soil to close should be sufficiently lightened, and made porous by applications of large quantities of manure, such as cow manure when bedded with corn stalks and fermented with horse manure but which have not rotted. Coarse horse manure or that which is filled with coarse straw or marsh hay and applied in the "Green State" or before it has decayed will loosen the soil and make it porous and easy to cultivate. Although there is not so much strength or nourishment as in well rotted manure or compost, but when soils are in such condition as I have stated, they must first be loosened and made porous. Hard clay soils treated in this way in two or three years will be mellow enough for small vegetables, if applied in large enough quantities, which should be done in all cases of this kind. When the soil is once thoroughly lightened, then rotten manure composts, or special fertilizers, may be used with better results. As the manure is applied in the furrows between the rows, coarse litter of any kind may be spread in them and worked as easy as if composts were applied. This little point makes it very handy for gardeners as they can apply to their Rhubarb with good results any coarse litter they may have, and use their compost, rotten manure and fertilizer for smaller vegetables which require more nursing to produce them. Besides, when applying coarse manure, to small vegetables, or on ground to be sowed, it is continually bothering in the seeder or other parts of its cultivation. Soils, sub-soils and situation differ and so must practice also, as when sandy soils are used, or light

black soil, there must be applied fertilizers or manure containing more strength. Sandy, or gravelly soils, will not hold fertilizing substances any length of time unless there is a hard sub-soil near the surface. If the soil and sub-soil are porous the rains will continually wash the nourishing ingredients down out of the reach of all crops. As this is the case very often, and nearly always so in some parts of the country manure composts and fertilizers, should be used freely, continually and at the right time. In these soils, fertilizers may be used with great results as no manure being necessary to loosen the soil, but it must be applied with a liberal hand; as the quantity of roots you take out from the ground depends on the quantity of nourishment or food you give the ground. In open winters manure should not be spread on the ground as when freezing and thawing continually, and rain of several days duration, will wash away a great quantity of the fertilizing food you wish for your spring crop. Manure, when hauled from cities or even what is made from your own stock should be put in piles and made into composts by mixing different manure together, and let it slightly ferment then turn it over and so on, continually breaking up all lumps and making it fine. This, if properly done will have twice the strength as if put on in the "green state." When it is left in piles it should not be left too long before it is turned over or spread upon the land for if it burns "or fire fangs" it is almost worthless for fertilizing as the strength is burnt and gone. The same case applies to the ammonia contained in manure as when left to heat, or wood ashes is spread on manure and is not covered

over afterwards very thickly with manure or dirt the ashes will set the ammonia free and will be taken up in the air. This is an important rule and should be remembered: never put wood ashes with manure unless covered over deeply with some substance, if not it will set the ammonia free and this is an important ingredient of a fertilizer. The great error in the cultivation of Rhubarb, is to starve it. By many cultivators when every other crop has had its share and the manure heap has been used up the Rhubarb bed is forgotten and about the only food depended on for the coming crop being the partly decayed leaves and stalks, the atmosphere and what little substances the soil yet contains. No wonder under such treatment the crop is small, the Rhubarb small and the results unsatisfactory. Another error of the opposite extreme is one often committed by market gardeners who have learned that no paying crop can be grown without liberal feeding, who give all the food necessary, but do not allow sufficient room for it to grow under such cultivation, and as it is a perennial plant they have formed an idea that the soil needs no loosening whatever and consequently the bed is deprived for years without thoroughly loosening the soil or feeding it. Night soil when used should be mixed with other manures in the form of a compost, though it may be applied fresh if care is taken to mix it thoroughly with soil.

CARE OF THE YOUNG BED.

The bed should be kept clear of weeds giving all the advantages to the young roots. This may be done by hoeing and cultivating at intervals of a

week or so during the season. The rows should be hoed with a four-tined potato hook or prong hoe, which is by far better than a common hoe to loosen the soil around the plant and between the plants. Fig. No. 8 represents the prong hoe generally used.

Fig. No. 8.

Prong Hoe.

The weeds that come up close to the plants must of necessity be pulled out by the hand. The Planet Jr. Cultivator or any other good cultivator may be applied between the rows and alleys, not letting the weeds get too high, as when they are young and tender the sun will work destructively on them. Fig. No. 9 represents the Planet Jr. Cultivator used by most all gardeners for general purposes. Warm weather and a few rains after the roots or buds are transplanted will start them to growing, throwing out shoots which will soon break, leaving the little stalks perceptible, which will not grow large the first year. When the stalks are five or six inches long it can be mulched with coarse barn manure, covering the space between the rows, and putting it close around the hill. This will hold in the moisture which will add greatly to its growth in case of a dry

season, besides destroying the germinating weeds and greatly increase the growth of the crop.

The stalks producing the seed draw heavily on the roots and should be cut off as soon as visible, about a foot from the ground, using any knife that you wish, being careful not to cut the other stalks. When land is infested with twitch or quack grass it may be destroyed by thoroughly working the soil

Fig. No. 9.

Planet Jr., Horse Hoe and Cultivator.

once or twice a week during the season; following these instructions will usually kill the patch. It may also be dug up with a six-tined fork by loosening the ground thoroughly around the infected patch, then pull out with the hands, if any breaks off, the remaining part should be dug up. This plan is profitable when in small patches, as it may be entirely dug up and destroyed. In some parts of

the country Canada thistles abound. The best plan to destroy small patches is by putting a handful of coarse salt on each thistle, this should be repeated as they sprout up. One handful of salt on a thistle will almost always kill that part of the root, although the same root may run two or three feet in length and sprout up in another place. Therefore the patch should be watched and every one coming up salted. For large patches this would be rather laborious, so I would advise thoroughly working the soil. Cultivating once a week during the season this will generally rid the ground of the obnoxious weed. These two pests should be kept entirely out of the Rhubarb bed and all small vegetables.

TENDING IN THE FALL.

As soon as the stalks die down the beds should be gone over and all weeds and grasses pulled up or hoed out by the roots, put in piles between the rows, where they may be gathered up with baskets. Carry them out of the beds, put them in a big pile and burn them. When this is done you may rest assured they will never return. This will save lots of work in the busy spring when your time is needed in sowing other crops. If the bed or beds have only been picked lightly and a heavy crop of stalks and leaves left to decay during the winter, the frost will be held in by the massive leaves, making the crop late. As I have stated, when applying manure in the fall. This may be obviated by raking them off with a horse rake. This when dry will make good bedding for cattle. This plan applies only to beds that have been picked very sparingly or

those that have formed a heavy crop after you have quit marketing. Otherwise I would leave them on as it takes the strength from the ground to produce them, so when left to decay the substance will enter the soil and be taken up by the roots the following spring in producing a crop for market. This way the land will lose no strength as the ingredients are retained in the soil, besides making it more light and applicable. The latter part of fall, before the ground

Fig. No. 10.

Bissells' Swivel Plow.

Sold by Hirsch Bros., Milwaukee, Wis.

freezes, there should be a furrow plowed close to each row turning back the soil. If a swivel plow can be had and the rows run east and west the furrows should be turned from left to right leaving the soil that is turned back facing the south, although this may seem simple the frost will come out much quicker in the spring than if facing the north. If the rows should run north and south the furrows

should face the east. Fig. No. 10 shows an improved swivel plow to be used for this purpose, they are also very handy for market gardeners when plowing small pieces between other crops as the furrows can all be turned one way. Fig. No. 11 represents the way the beds are left in the fall, and the necessity of the alleys.

Fig. No. 11.

Rhubarb Beds Prepared for Winter.

If a swivel plow can not be had most any good two horse plow will answer the purpose, but half of the furrows will have to be turned the wrong way if you go around the bed, if you plow only one way it is too slow work. As the profits of all crops are generally

governed by the earliness they are brought in market all facts pertaining to their earliness should be carried out when growing it for profit. When raising it for family use in small gardens simpler plans would be more convenient. "This will be explained in the preceding pages under the head of Essential points in growing good Rhubarb."

TENDING IN THE SPRING.

If the Rhubarb is to be pulled early for market, it should be tended immediately in the spring, filling up the furrows that were plowed in the fall, with manure, prepared composts, or muck. It is not always prudent to use your richest manure for Rhubarb, as it may be needed more on your smaller vegetables. Course manure such as cornstalks, coarse marsh hay, fresh straw, or any course litter may be used with good results; although it is not so rich in food as the former, yet it will keep the soil light the whole season, making it an easy matter for the young rootlets to penetrate through the soil in search for food. This being done, turn the ridges back with a one-horse plow which will cover up the manure, this time leaving a smaller furrow; use about one-third as much manure as in the first, then cover this up by drawing on the dirt with a prong hoe, this will leave the ground almost level. Fig. No. 12 shows a one-horse plow that can be used for this purpose.

If course litter has been used, leave it a little higher between the rows to allow for settling, when it decays. The ground between and around the hills should now be loosened with a four-tined prong hoe,

being careful not to hook into the roots. All weeds and grass should be hoed up and carried out of the beds. If very fine manure or fertilizers are to be used, it should be spread between the rows and cultivated in the soil. This being a good deal of labor, some people simply mulch the beds with coarse manure covering the entire ground, being careful not to cover up the hills as it will make the stalks crooked. This is a good way to treat young beds but not advisable for old ones, as in the latter the ground

Fig. No. 12.

Bissells' Oliver Plow.

Sold by Hirsch Bros., Milwaukee, Wis.

should be loosened up at least once a year. However, this is a good plan after the other rules have been carried out in the spring. Good judgment should be used in applying fertilizers, using according to their strength and size of bed. Patches of Canada thistles and quack or twitch grass should receive special care in this part of the spring, by digging up all the roots possible. This should not be neglected, as if it once gets the start of you, it is useless to bother with it.

PREPARING AND MARKETING THE CROP.

Rhubarb should not be picked for market before the third season after it has been transplanted, allowing the roots the full benefit of the soil, so as to get well and firmly established before making a very free use of the stalks; as every stalk pulled, takes so much substance away from the roots. After the specified time, if it has been manured heavily, it may be picked continually during the Rhubarb season, which lasts in this latitude from the latter part of April till the forepart of July, making it about ten weeks in all. This makes a very long season when you can pick continually. The stalks of the first picking are seldom larger than five or seven inches long, and may be pulled still shorter if there is a good demand, as the earliest pickings give the most profits; and the stalks being small and easy to handle, besides drawing less strength from the roots. The stalks are pulled out of the hill by placing the hand close to the bottom of each stalk, pull upward in the direction it is growing and they will come out easily and avoid breaking. Although these little rules may seem foolish, yet they are essential. New beginners in pulling, unless they are cautioned by experienced ones, generally place their hand around the center of the stalk if they are long and brittle, as they generally are in the latter part of the season and especially so after a rain, this plan would break a great many. Therefore if new beginners are cautioned about this simple but essential plan, it will avoid a great waste. The price paid for help in preparing

this crop for market, ranges from fifty cents to one dollar and a half per day, the former being for young boys and girls. When it is pulled it may be put in small piles along the rows, of about sixty or seventy stalks each, it requiring about that many for an armful, this will make it handy in gathering. If put in too large piles it would have to be divided before carrying, making unnecessary labor, besides breaking it more or less in extra handling. *Linnæus* and *Victoria* are very brittle and should be left in the sun after being picked, till wilted enough to handle without breaking. When this is performed it may be carried to some place for preparing it for market. If it is only a short distance it might be carried to the place by the armful, this plan is generally practiced when raised by the quantity, having the house which is built for that purpose, located in the central part of the plantation between the beds, making it accessible from all points. If it is not so convenient it may be piled in a two-wheeled cart, a truck or common wagon, the truck-wagon being handy to load and unload, when any of such conveyances as you see fit to use are filled, it may be taken most any distance you find convenient, if properly covered and watered, to keep it from the rays of the hot sun. This is generally practiced when raised in small quantities, quite a distance from sheds or barns, and of course would have to be conveyed the same way if raised in larger quantities, unless other houses were built. When it is to be grown extensively, there should be a house built on purpose for preparing it for market, as it would be impossible to prepare large quantities in a proper manner without a

building built for that purpose. Although built for the preparation of Rhubarb, it will never be found out of use, as all vegetables may be brought to this building and prepared in like manner as Rhubarb. As for an example: Early Beats, Early Carrots, Radishes, Asparagus, Parsley and winter bunch onions, all these are sold in bunches in the spring and early summer; all kinds of herbs that are sold by the dozen or hundred bunches, would have to be tied and packed in boxes, and all of these must be kept out of the sun as soon as they are taken from the ground. It would certainly be impossible without such a building to properly prepare these vegetables. It may be used in the fall for drying onions and all kinds of herbs in case of early frosts. Squashes, pumpkins and all vegetables that would be injured by the frosts, could be put in the same building till convenient to market them. To bring it into use the whole year, the machinery can be left there during the winter, and all tools and implements of all kinds should be sheltered during the winter to keep them from rusting. Such a building may be built in the following manner: Eighteen feet wide by thirty-six feet long. The room for preparing should be eight feet high and the roof any height desired. There should be two tables, each three feet wide, three feet high and thirteen feet and a half long, both placed in one row six feet from one of the sides, leaving three spaces of three feet each, one between the building and table at each end, and one between the two tables for passways. This will leave six feet wide on one side of the tables and nine feet wide on the other side. On the former side there

should be one sliding door in the center of the building, on the outside, this is to be used when loading. On the latter side there should be two sliding doors, one at each end of the building. Two or three windows on each side will be sufficient. These should be provided with curtains to keep out the sun, but thin enough to let in the required light. Over the tables and next to the ceiling should be placed a shelf, to keep the twine and knives when not in use. A well should be dug on one end of the building, so that a force pump and hose can be applied, to water the Rhubarb and other vegetables. The building should be so constructed, that a stove could be used if necessary, on cold rainy days, as is generally the case in the early part of spring. The space nine feet wide, is used when the Rhubarb is brought from the beds, here it is piled next to the side of the building. If the weather is very warm it may be watered to keep it from wilting. Then the sheath or loose skin at the but end of the stalks are stripped off. As this is finished, it is put on the table. Two persons are required, who stand side by side: one bunches it, the bunches varrying in size, according to the demand in the market, generally from two to five stalks in each. A little experience will be found necessary before the bunches can be made nearly the same size. The buncher than hands it to the second person who ties it with two ply jute twine, winding the string around the center of each bunch twice if to be tied after in dozen bunches one tie on each bunch will be sufficient. The string may be cut off with any small sharp knife. As this is performed the second person gives it a little toss on the table so

as to be able to tie fifteen or twenty dozens before it has to be cut off. Then the third person cuts the leaves off with a large knife such as used by butchers. The leaves are trimmed off to a point to make the bunches look long besides it gives them a nice appearance.

Fig. No. 13 shows two bunches of Mammoth Red Rhubarb tied for market with one tie of two ply jute twine: The three upper balls of twine are two ply jute. The lower three balls are wool twine used to tie the loose stalks in dozen bunches, also to tie the small bunches in dozen bunches. This twine is the cheapest and strongest for such purposes to be obtained in Milwaukee, it is also used for tying all other early vegetables. It is then piled up on the floor opposite the tables on each side of the door. Here it is left till ready to load for market. The piles should be watered occasionally to keep the Rhubarb fresh. Great caution should be taken when preparing it to be shipped. Should it spoil it would be quite an expense to the sender. Although it can not be classed with fruit it will perish quite easy if not properly prepared. By all means it should not be shipped in too bulky a form. When preparing it for shipping, the leaves should be cut off close to the stalks, this will partly avoid heating. The sheath should be pulled off at the butt end of the stalks which will make the bunches look cleaner and all together will make it less bulky.

The Express or Freight being expensive it should be as clean as possible only shipping that part which can be consumed. It may be packed loose or in small bunches in barrels or boxes. Large quantities

are being shipped from the south to the northern markets every season. Home raised Rhubarb when sold by the dozen bunches in Milwaukee brings from

Fig. No. 13.

Mammoth Red Rhubarb bunched for market.

Two ply jute twine and wool twine for tying.

fifteen cents to one dollar per dozen, the latter being for Green House stock. The standard price being about twenty cents per dozen bunches. We sell

about ten thousand dozens in Milwaukee annually, ours generally being preferred to others, it being the largest grown, as we have the best varieties, which are fertilized and receive the highest of cultivation. We have sold large quantities of Rhubarb for wine. In eighteen hundred and eighty nine we shipped nineteen tons to be used for that purpose, after we were through selling by the dozen at our home market. The price paid by the Ton ranges from fifteen to twenty dollars. The receipt I have given for making Rhubarb wine will be found of much importance to those wishing to make this kind of wine. Fig. No. 14 represents a partial view of our Rhubarb plantation in May. All the beds are Mammoth Red.

TRIMMING THE ROOTS AS THEY GROW LARGER.

As the seasons go by the roots keep increasing in size at the same time. Although they are producing more stalks they are diminishing in size, growing long and slender. So we must find some way to check them, and keep them at a certain stage. This may be done simply by cutting off with the plow a portion of the roots that are too large, when plowing in the spring and fall. This will check the growth of the roots and give more substance to the stalks the coming season. This plan of pruning should be applied to both large and small beds. Trimming may be repeated as often as the roots get too large. The necessity of this may be noticed by the hills producing an abundance of small slender stalks which if not trimmed would soon produce an unprofitable crop. If only small beds are raised they

Fig. No. 14.

Partial View of our Rhubarb Plantation in May. All the beds are Mammoth Red.

may be pruned with a spade, which would be much handier in this case. If care is taken when trimming the roots to not cut off the crowns or damage the root part, they may be used for resetting new beds as it will not hurt the hills or the sets if properly trimmed, but greatly benefit the former. This is very simple. Linnæus and Victoria are the rankest growers and should receive more pruning than the other varieties. Always trim at the sides to keep the rows straight. Remember this if you wish to have large and tender stalks. On old beds it depends greatly in pruning. Our oldest bed is now twenty three years old and is as profitable as our young beds, it being as large and tender as the latter. This proves that good care, high cultivation and pruning will keep up a bed of Rhubarb as long, if not longer than any other perennial plant grown for market.

FORCING RHUBARB.

Quoted from Currie's Horticultural monthly: A nice dish of Rhubarb may be obtained occasionally early in the spring, long before the main crop comes in, with but very little trouble in the following manner. Secure several flour or apple barrels and knock the ends out of them. Set them over as many stools of Rhubarb growing in the garden. Then around them and to a depth level with their tops place a quantity of hot stable manure. Over the mouth or open ends of the barrels place short pieces of boards for lids leaving them a very little apart to allow the steam to escape that it may not damage the young shoots as they begin to spring up, which they shortly will after the covering is put on.

Fig. No. 15.
Interior View of One of Our Green Houses, Rhubarb being grown under the benches.

MY PLAN OF FORCING RHUBARB IN GREEN HOUSES.

Rhubarb is now grown quite extensively in Green Houses by some of our market gardeners and florists. It being a very simple and suitable plant for forcing under the benches, also a paying crop. The best

Fig. No. 16.

Log.

Fig. No. 17.

Spade.

plan is to dig the roots or the hills from the open ground in the fall about the latter part of October or the fore part of November before the ground freezes, as it would be impossible to dig them afterwards. The quickest way to dig them is to plow a furrow next to the hills throwing the soil away from them,

then use a strong spade to dig around them and press them out with a log which is placed under the hills. Fig. No. 16 and 17 represents a log and a spade which is used for the purpose and is the quickest way of getting them out, without injuring the roots or the crown, that I know of. As soon as they are dug, place them in a cool shed or cellar where they will not grow but freeze instead, leave them there until ready to put in the green house. This way you may put as many as you wish in at a time, and have the pickings come at different times. I have tried them both ways, with and without freezing, but the former proved the best plan, as they start much quicker when placed in the green house. The most demand is towards spring, in February and March, although small quantities can be sold before this time, especially during the Holidays. Of course people must use good judgment in all such cases as it depends on the size of the place in which it is to be sold and the general demand for it. When digging them leave as much dirt on as possible, and be careful about handling them when frozen so as not to break off the buds. When placing them in the Green House under the benches put them as close together as possible, sifting in the soil immediately to fill the intersexes between the roots. Cover over the buds or top of the roots with about two to five inches of soil to assist in drawing out the frost, leave this on about four or five days or until the frost is entirely out, then remove the soil on top and give them plenty of water and as much fresh air as possible. The temperature should range from forty-five to seventy-five degrees. By following this rule Rhu-

barb may be had from December to April or until it is marketable out doors. Sun or direct light is not at all necessary in growing Rhubarb in this manner, in fact the stalks are much tenderer when grown without direct light. Consequently they may be placed in any part of the Green House most conveni-

Fig. No. 18.

Double Dome Weathered Boiler.

ent, in the furnace room of a cellar or in any place where it will receive the necessary temperature and moisture. I am raising large quantities of Rhubarb in this manner at the present time which proves very satisfactory under these principles. I have raised good Rhubarb sixteen inches long in twenty-four days after placing them in the houses, although the usual time is four to six weeks. Fig. No. 18 is a double dome weathered boiler which is used for forcing Rhubarb and other vegetables such as Lettuce, Radishes, Beets, Green Onions, Parsley,

Mushrooms, Cauliflowers and Cucumbers, etc., which proves very satisfactory as they are economical in fuel and easy to regulate.

The Linnaeus, on account of its extreme earliness, is claimed by most people to be the best for forcing under glass, but as I have tried most of the varieties I will have to differ with them on this point. It is the earliest beyond a doubt, whether raised in the open field or forced. I do not consider the earliness of the variety any point of profit when forced under glass. The roots or hills must, of necessity, be dug up before the ground freezes, and when once thoroughly frozen through may be immediately placed in the forcing house, if wanted, figuring on four weeks for a crop after placing them in the houses and having the roots stored in a convenient place, so they can be had at any time. Therefore you can very easily have the pickings come at any time when there will be a market for it. Furthermore, it is seldom wanted so early in the season; if so, in very small quantities. The Linnaeus, when forced, in fact grows much faster than the late varieties, but after two or three pickings it becomes very small, almost unsalable. Its rapid growth bringing the pickings only a few days apart, must certainly draw very heavily on the roots, making the stalks small and exhausting the vitality of the roots. So I can not see any point of profit in the earliness of the variety, when forced. In this age of man reason must be based on facts, and as I have given you the facts you must judge accordingly. The best variety, if you wish to force it for profit, is the Mammoth or Large Red, as I have stated before. It produces large hand-

Fig. No. 19

Evan's Improved Ventilating Apparatus.

some red stalks in abundance and is a quick seller, bringing the highest price. It grows slower than the former kind, does not grow spindling and produces salable stalks, much longer than Linnaeus, besides retaining the vitality in its roots much longer. I am forcing this variety at present and supplying the northern markets, there being quite a demand for the product, as it is only forced by few. Only heal-

Fig. No. 20.

Mammoth Red Rhubarb Forced in Green House.

thy roots should be used for forcing, and such the larger the better. Never separate them, but leave them whole, unless they are so large that they cannot be handled; if so, they will have to be divided. This is seldom necessary. But it has been so with us. They being so large and having considerable dirt attached to them, they could not be lifted into the wagon. They measured fully two and one-half feet long and eighteen inches wide. These hills averaged each one dozen bunches at a single picking, using sixty stalks to the dozen. Roots four years old may be used with good results, but the larger the better. The gross profit in forcing this plant ranges

from fifty cents to a dollar per square foot of root surface. The price per dozen ranges from fifty cents to one dollar and a half, usually about seventy-five cents in this market. Fig. No. 20 represents Mammoth Red growing under the benches, which was photographed in February. Fig. No. 19 represents the Evans' Improved Ventilating Apparatus, which is used for ventilating greenhouses, where Rhubarb and other vegetables are grown, as plenty of air can be given at all times with little or no trouble.

FORCING RHUBARB IN HOT BEDS.

Rhubarb can also be forced in hot beds by digging up the old hills in the fall before the ground freezes, store them away in a shed and let them freeze. When frozen, cover over with straw or coarse litter to keep them from thawing out in warm weather. Leave them here until the first of February, when the beds should be made ready for the roots. The beds should be prepared in deep pits or frames similar to those used for forcing plants and early vegetables. Place in these two feet of fresh horse manure, which should be packed tightly; also two feet of manure in width around the sides and ends and as high as the frames. This should also be firmly packed. Place on the sash and let it stand till the bad steam has escaped. The sash should be covered every night as soon as the manure has been put in the frames, with mats made of rye straw. These should be removed in the morning to let the glass draw as much heat as possible. As soon as the bad steam has escaped, which is generally about one week (this depends on the freshness of the manure

and the way it is packed), four to six inches of soil should be spread over this; then place in the roots as close as possible, sifting in the soil between them to fill the vacant spaces. Cover with soil around them to the top of the roots and place on the sash as before, giving plenty of air on sunny days and an abundance of water. Keep the temperature about forty-five to fifty degrees at night and fifteen to twenty-five degrees higher in the daytime. This plan should produce Rhubarb in three or four weeks after the hills are placed in the beds. Rhubarb forced in this manner should average ten to fifteen dollars for every three by seven foot sash. This plan requires considerable labor, but you will be well paid if the manure is not too costly. Another plan of forcing Rhubarb in pits and which requires less labor may be done in the following manner: Dig the hills up in the fall and place them on mellow soil in the frames, which should be about two feet or two feet and a half high, set them as close together as possible and fill the spaces between them with soil. As soon as cold weather appears cover them over with about eighteen inches of coarse litter and let them remain so until the weather is warm enough so they will not freeze at night, when they are covered up with the sash and straw mats. As they have no under heat, the only heat that can be retained is that which the sash draws during the day. So, when the weather is warm enough, remove the litter and place on the sash. At this season of the year only enough air should be admitted to keep them from burning and keep the atmosphere fresh. This plan may produce the same quantity in weight as the former, but

it is so much later that the price is considerably lower, as the shipped Rhubarb comes in at this time of the season. The grower can select his plan by considering the expense, labor and profits of each. It must be remembered, however, that forcing completely destroys the roots, whether forced in green-houses or frames, and therefore is seldom practiced, only by those who have an abundance of roots, or where they would otherwise destroy them.

THE VARIETIES.

Bear this in mind, you will always be rewarded by sowing the best seeds and as well by planting the best roots, even if you pay double the price. The old variety of Rhubarb now grown is more than a century old, having been obtained in England as a hybrid from the original species received from Asia. The Linnaeus Rhubarb should be planted by all who wish the earliest in cultivation, it being about a week earlier than the Victoria: is very tender, being free from the tough stringy skin of most varieties; excellent for early picking and home use. When picked for market it should be wilted before tying it, to avoid breaking. It is used quite extensively for canning. It should not be planted for main crop, as it does not sell well after the later varieties come in the market, it being too small. This variety is generally recommended for forcing in Green Houses, but I prefer the larger varieties, as they are more profitable. The roots should be trimmed when the hills get too large to keep the stalks marketable.

VICTORIA.

This variety grows much larger than the former kind and is next in earliness. It is now grown quite extensively for early market, being about ten days earlier than Mammoth Red, and produces from two to three pickings before that variety is marketable. The stalks have a striking appearance, are very tender and exceedingly good for home use. This variety is generally planted instead of the Linnaeus as it grows larger and is more productive, producing great quantities of medium sized stalks. It is raised by most gardeners in this locality, and by some to the exclusion of all others. But as all vegetables have their limit, why should not this be the same. This is a medium early variety and should not be planted for a late market, although it may be picked at intervals of once a week during the season and bring a fair price, but it does not find as ready a market as the Mammoth Red, and therefore should not be planted to much extent. It is a very rank grower and should be pruned occasionally, as I have stated before. Victoria is used much for pies, tarts and canning, it being very juicy and having a rich spicy flavor, and is also used much for wine. Victoria is a great seed producing variety, often bearing ten seed stalks at a time. These are very injurious to the young stalks if left to grow taking a great quantity of nourishment from the roots; these should be cut off as they appear above the other stalks if not wanted for seed. If the latter is wished they may be left until they become a dark brown color, and when dry shake them off on a clean floor, put them in packages of some kind and keep in a dry place. It

is not safe to sow Rhubarb seed after it is two years old. Fig. No. 21 represents a bunch of Victoria.

MAMMOTH, OR LARGE RED.

This variety is the largest and most productive of all the kinds of Rhubarb, and ranks third in earliness. It is raised almost exclusively in this section for main crop. The name indicates its variety as it produces

Fig. No. 21.

Victoria Rhubarb.

an abundance of mammoth stalks of dark red color, growing from four to five feet high and fully four inches in diameter. Finding sixty stalks in a hill is of no rare occurrence and it is by far the best variety for main crop I have ever raised or seen. We have over three acres of this one variety and intend to increase this the following spring. The Mammoth Red finds a ready sale in Milwaukee from May to July, and may be picked in moderate amounts until

the fall. Our last picking this season was the third of October, making almost five months from when we started in the spring. Of course these late pickings are of limited amounts and generally picked for our regular customers. If this variety is put to

Fig. No. 22.

Mammoth Red Rhubarb.

high cultivation in open ground and forced in Green Houses during the winter it may be picked almost ten months in the year. Fig. No. 22 is a hill of Mammoth Red Rhubarb, photographed in May.

This kind is supposed to be catalogued under several assumed names, but is really the one variety. It is excellent for all purposes and makes handsome bunches for market. It may be carried to the house for preparing as soon as it is pulled, it having thick stout stalks and is not so liable to break as the Lin-næus and Victoria. If my readers wish to force

Fig. No. 23.

St. Martins Rhubarb.

Rhubarb in Green Houses, plant the Mammoth Red by all means. As it will produce a greater quantity of large stalks than any other, and more than that, it will bring you a better profit for your labor. This being the point that all progressive farmers and gardeners aim at, it should be remembered. Plant the best varieties and feed them and they will feed you. When digging the roots to be put in the forcing

house they must be left whole and not divided. This variety needs very little pruning and produces very few seed stalks making it very easy to tend.

ST. MARTINS.

St. Martins Rhubarb is catalogued as a new variety, which originated a few years ago in England, and is claimed to have a rich spicy flavor, very productive, and of a large size. It is also a late variety. I am trying this new kind this season and of course cannot speak of my own experience on this variety, but trusting to our esteemed seedman Mr. Henderson, who has the variety for sale, I think it would be worthy of a trial by all. Fig. No. 23 is a hill of St. Martins Rhubarb which shows its size and productiveness. It is also very handsome in appearance.

MAMMOTH GREEN.

This kind is distinct in color from all the above varieties, being a light green and the latest cropper on our plantation. It grows about two and a half feet high and four to five inches in diameter. It is more inclined to be tough and stringy than the above varieties. Produces about half the number of stalks to the hill as the Mammoth Red. It is raised by us to a very limited extent for a late market, as it has great keeping qualities. It may be left a week or so, after the stalks are almost fully grown, before it has an old appearance. It can only be picked a few times during the season, but may be left several days after picking before it becomes unsalable. The large green is used by some for canning, claiming it to be sweeter, but I think this is only a notion as I can see no difference in it from the other varieties. I

would not recommend it unless to be planted in small quantities for late use. The roots grow very slow and consequently need little or no pruning. Very few seed stalks are produced on this variety. There are numerous other varieties of but little or no importance, so I will not spend time to discuss them. We had at one time eleven varieties on our experimenting ground, but have discarded almost all of them. Some of them were almost worthless, producing stalks of not more than six inches long, and tough enough to tie a knot. There have been several new kinds originated lately which are spoken of highly, although I do not think they will out-yield the old varieties. However, I have not the faith and time to try them. The American varieties of Rhubarb are distinct from the Turkish Medicine variety.

HOW RHUBARB PAYS COMPARED WITH CERTAIN CROPS.

Rhubarb is a paying crop when raised under the right cultivation, this nobody will attempt to deny. But it may be made an unprofitable crop just as easy and perhaps easier. And is made so by a great many farmers and gardeners. They thinking that it is not profitable give it little or no care, and consequently make nothing out of it. Why should they, is there any crop that is profitable without care, and good care at that? I don't think there is. These men are very progressive ones, they have so much to do they have no time to consider whether their crop is paying them or not and go on raising it. These men have not got their eyes open or else they are careless and don't stop to give it a thought. Here

are two good mottos for them and to be thought of by everybody: "No Cultivation, No Profits," "High Cultivation, Enormous Profits." If my readers will think of this and then look around them they will find it is true. Whatever the crop may be give it good care and prove whether it is profitable or not for you before you raise it extensively or before you discard it. Now we will come down to business and figure on the production and profits. Gardeners sometimes in figuring the profits of any particular crop fail to charge anything for their land, and besides throw in their own time, and perhaps that of their hired man and children. This way they make a fair showing for their crop as they only charge it with the cash they have expended. But this is not the proper way. They should charge a fair price for all labor put on it; that of your hired man, your own, and that of your children, and also a fair percentage on the value of the land; the cost of seeds or roots, and fertilizers after all these are figured on, and deducted out of the gross cash, then one can begin to talk about net profits. Some would say figured in this light no crop would pay. I can't help it, that is the only fair way to figure it, and if your crops cannot stand these figures their cultivation should be improved. And let me tell you right here that the cultivation of the majority of crops should be improved. If you would take a trip through some of the farming districts in most any of the states you would certainly be convinced on this subject of higher cultivation. Now let us figure a little on an average acre of Rhubarb in Wisconsin for a period of twenty years. The cost of production and

profits no matter where it hits. My plan of figuring on an acre is not a rough guess but an accurate account. Say the acre is twenty rods long by eight rods wide, deducting out three alleys of ten feet wide each running lengthwise. Planting the roots four by four feet would make three beds one and one half row, this would make two thousand one hundred and three hills in an exact acre. These would cost about ten cents each by the quantity, or two hundred and ten dollars and thirty cents. This would seem by some, before they stop to think, an enormous sum for planting an acre. But remember when once planted it is planted for twenty years, and forty years if you wish to grow it that long, and after it is four or five years old you may set out a dozen acres from one acre by dividing the old roots. So it is not such an enormous price as it seems at the first thought. Now I will give you the figures on an acre of Rhubarb for a period of twenty years which will not vary much from the actual cost on our farm for the same number of years past.

Roots, 2103 at 10c each.....	\$ 210 30
Plowing, first year.....	1 50
Throwing away the dirt from the rows with a two horse plow in the fall for 19 years, at 50c per year.....	9 50
Plowing back the soil in the spring with a one horse plow for 19 years, at 25c a year.....	4 75
Harrowing and crushing first year.....	50
25½ loads of manure yearly at \$1.50 per load would make \$38.25, for 20 years.....	765 00
Marking and setting out first year.....	3 00
Hoeing \$1.50 per year for 20 years.....	30 00
Twine, \$2.00 per year, for 18 years.....	36 00
Preparing for market, \$50.38 per year, for 18 years,	906 84
Cannot market it before two years after planting.	

Marketing it 18 years.....	\$ 324 00
Interests for first five years at \$100.00 per acre at 5 per cent.....	25 00
Next 10 years \$400.00 per acre at 5 per cent.....	200 00
Last five years \$800.00 per acre at 5 per cent.....	200 00
Total expenses for twenty years, - -	<u>\$2,716 39</u>

One acre of Rhubarb will produce three thousand three hundred and eighty-three dozens yearly. Say the price will average seventeen cents per dozen, that will amount yearly to five hundred and seventy-five dollars and eleven cents, or in eighteen years to ten thousand three hundred and fifty-one dollars and ninety-eight cents. Expenses for twenty years two thousand seven hundred and sixteen dollars and thirty-nine cents. This will leave a net profit of seven thousand six hundred and thirty five dollars and fifty-nine cents in twenty years, or an average of three hundred and eighty-one dollars and seventy-eight cents yearly net profits. Now we will compare the cost of production and net profits of an acre of Onions for the same number of years.

Plowing yearly \$1.50.....	20 years, \$	30 00
Manure and Fertilizers yearly \$70.00.....	"	1,400 00
Harrowing twice " .60.....	"	12 00
Pulverizing " .50.....	"	10 00
Crushing " .40.....	"	8 00
Sowing the Seed " 1.00.....	"	20 00
Seed, 5 lbs., " 10.00.....	"	200 00
Wheel hoeing six times " 9.50.....	"	190 00
Weeding three times " 20.00.....	"	400 00
Pulling Onions " 3.00.....	"	60 00
Cutting off onions " 9.00.....	"	180 00
Marketing " 12.00.....	"	240 00
Interests same as Rhubarb.....		425 00
Total expenses.....		<u>\$3,175 00</u>

The expenses placed at the lowest figures are four hundred and fifty-eight dollars and sixty-one cents more than Rhubarb for the same period of cultivation. Say the crop of Onions is six hundred bushels per acre yearly and the average price fifty cents a bushel, which I think is a fair price, this would amount yearly to three hundred dollars, and for twenty years six thousand dollars. The total expenses are three thousand one hundred and seventy-five dollars, this will leave a net profit of two thousand eight hundred and twenty-five dollars for twenty years. This would make one hundred and forty-one dollars and twenty-five cents net profit yearly. This would be two hundred and forty dollars and fifty cents less yearly than Rhubarb, and in twenty years would amount to four thousand eight hundred and ten dollars less than Rhubarb. To produce a crop of onions that will yield six hundred bushels per acre will take at least half a ton of Guano fertilizer, also a greater quantity of manure than Rhubarb. The cultivation will be more expensive and the seed will cost for a period of twenty years two hundred dollars or only ten dollars and thirty cents less than the Rhubarb roots. More experience is necessary in raising onions profitably than the former. Taking everything into consideration, the experience required, the laborious work of weeding, wheel hoeing and with a possibility of only a half crop every few years, due to poor seed that will not germinate, I think you will find Rhubarb a more profitable and pleasant crop than any other when raised under high cultivation and near a good home market.

POTATOES COMPARED WITH RHUBARB.

Here is a crop that is raised by most all tillers of the soil, so we should be well posted on this vegetable. Although the expenses are much lighter than most of the vegetables, there is less profit. As I have stated heretofore, little cultivation, small profits. But even this crop may be made exceedingly profitable when grown in certain ways and for particular purposes, as when raised for seed. An acre under good care may bring seven hundred dollars, if you can sell them for that purpose. But the little word if may be in the way when it comes to sell that many for seed, unless you are widely known. A profitable crop may be grown on sod, as the ground would not be in good condition for most root crops, and besides would assist in the decomposition of the sod, and by the second season would be in good shape for other crops. A profitable crop may be raised by planting the varieties that will yield enormous crops under the highest of cultivation. The potato crop grown by the majority of the people is not a paying crop, compared with Rhubarb or most of the vegetables. The following are the figures for an acre of Potatoes on the same basis as the former crops:

Plowing, yearly, \$1.50.....	20 years, \$	30 00
Harrowing twice, yearly, 50c.....	"	10 00
Pulverizing with smoothing Harrow, yearly, 25c.....	"	5 00
Crushing, yearly, 25c	"	5 00
Marking, " 25c	"	5 00
Seed, 10 bus., 50c per bu., yearly, \$5.00.....	"	100 00
Covering with cultivator, yearly, 30c.....	"	6 00
Cultivating four times, yearly, \$2.00.....	"	40 00

Hoeing and pulling out weeds missed by cultivator, yearly, \$1.25.....	20 years, \$25 00
Keeping off Bugs, yearly, \$2.00.....	" 40 00
Digging and picking up, yearly, \$4.00....	" 80 00
Marketing, yearly, \$5.00	" 100 00
Manure, yearly, \$20.00.....	" 400 00
Interest on value of Land same as Rhu- barb.....	425 00
Expenses for 20 years.....	\$1271 00
Expenses yearly.....	63 55

Under this cultivation they will produce about three hundred bushels to the acre. This is a big yield, and with an average price of fifty cents per bushel would make one hundred and fifty dollars yearly, or three thousand dollars gross cash for twenty years. Deducting one thousand two hundred and seventy-one dollars for expenses, would leave a net profit of one thousand seven hundred and twenty-nine dollars, and a yearly profit of eighty-six dollars and forty-five cents, which would be called a fair profit. This is two hundred and ninety-five dollars and thirty-three cents less than Rhubarb yearly, and fifty-four dollars and eighty cents less than Onions yearly, and would be five thousand nine hundred and six dollars and sixty cents less than Rhubarb for twenty years. I do not think it would be profitable to raise potatoes, if there is a market for the former. Of course, as I have stated, it would pay under certain cultivation and in locations adapted to it.

WHEAT, THE COST OF PRODUCTION AND NET PROFITS.

THE YEARLY COST AND YEARLY PROFITS, AND COST AND
PROFITS FOR TWENTY YEARS, COMPARED WITH
RHUBARB.

As wheat is a farm product, I wish my farmer readers to take special care in comparing it with Rhubarb and the other crops I have mentioned.

Plowing, yearly, \$1.50.....	20 years, \$	30 00
Harrowing and crushing, yearly, 75c.....	"	15 00
Seed, 1½ bus., yearly, \$1.25.....	"	25 00
Sowing, yearly, 15c.....	"	3 00
Cutting and binding with self-binder, yearly, \$1.00.....	"	20 00
Hauling to stack, yearly, \$1.00.....	"	20 00
Threshing, yearly, 75c.....	"	15 00
Marketing it, yearly, 15c.....	"	3 00
Interest, same as Rhubarb		425 00
Total expenses.....		\$556 00

Yearly cost twenty-seven dollars and eighty cents average yield eighteen bushels per acre which may bring a dollar a bushel or eighteen dollars, this would make a loss of nine dollars and eighty cents yearly or a loss of one hundred and ninety-six dollars in twenty years and only the straw used as manure or fertilizer to keep up the fertility of the soil. Expenses for twenty years five hundred and fifty-six dollars. Cash received for crop eighteen dollars yearly or three hundred and sixty dollars which is a loss of one hundred and ninety-six dollars. The net profits of an acre of Rhubarb for twenty years is seven thousand

six hundred and thirty-five dollars and fifty-nine cents, this would make the enormous loss of seven thousand eight hundred and thirty-one dollars and fifty-nine cents for twenty years, if wheat was grown instead of Rhubarb. The comparisons I have given are to show the financial difference in the crops. Rhubarb, as with many other vegetables, can only be grown to a certain extent, or the amount that can be consumed in the market or the amount that can be shipped to other markets and bring a fair net profit whatever it may be should be grown, and then the next most profitable vegetable and so on.

DIGGING AND SEPARATING THE ROOTS FOR SETTING OUT NEW BEDS.

When setting out new beds, roots may often be obtained from your neighbors or in the vicinity you live. When such is the case, they may often be bought by the hill and separate them yourself afterwards, which will lessen the expense of the roots. Hills bought this way are worth from one dollar to one dollar and a half according to the age and size of the roots. I have been offered three dollars for large hills, but this is an exception. When large hills are separated they will be from ten to twenty buds or separate roots, and different varieties varying from this. The hills are easiest dug with a long handle spade, a loy and shovel. The loy is to cut under them and assist in pressing them out. Farmers and Gardeners use this tool a great deal for digging holes for posts and pillars. Furrows plowed along the side of them will also help in loosening them. The hills are divided by breaking apart each eye or bud with

a root attached; these forming a plant. Long sprangly roots should be cut off to assist in the transplanting as if left on, the holes have to be much larger which will take extra time. It is best that the long roots be cut off, for as soon as they are transplanted they will immediately throw out young rootlets which will feed the young plant more than if the old roots are left on. The price of good single roots varies from ten to twenty cents a piece according to the variety and quantity of roots wanted. They can generally be obtained by the quantity for fifteen dollars per hundred.

PACKING THE ROOTS FOR SHIPPING.

This is a matter for which it is not so easy to give accurate directions, as the distance and season in which it is to be shipped will greatly determine the the manner in which it is to be done. But a general direction may assist the inexperienced. As the roots are generally set out during the summer, that is the time when they must be shipped. If the temperature is high, provision must be made in the packages for the admission of air to prevent the roots from heating. They are usually packed in barrels or boxes according to the convenience of the packer, and the quantity that is to be shipped. Cut hay or straw may be used between the roots in packing to keep them from heating. Moss is the article mostly used for that purpose, and is best if it can be obtained. I have shipped roots from Milwaukee to Seattle, Washington, in the hottest part of the summer packed with hay cut about an inch long, and had them keep perfect and good. The judg-

ment of the shipper must be exercised in respect to the quantity of moss, or dry cut hay in which the roots are to be packed, only using enough to keep them from heating, as it is bulky and would only increase the Express charge.

ESSENTIAL POINTS IN THE PRODUCTION OF GOOD RHUBARB.

The plans and practices of the system of cultivating good Rhubarb require considerable time and space to note on paper. The important points between that and the plan generally practiced are so very different that I will state the former plans in as minute details as possible. Each hill or plant is cultivated as a separate or individual rapid growing subject, and necessarily must require considerable space for nature to grow it. If a vigorous growth and strong healthy roots are desired, good judgment and long experience in growing such vegetables has convinced growers that a smaller space than four or five feet apart each way can not possibly give the best of crops. Although this may seem like a waste of ground, it is not so, for when the Rhubarb has attained its regular size, its massive roots generally fill the whole space allotted to it, therefore the result of wide cultivation for such crops is so much more satisfactory than the old way, commonly employed, that the same amount of surface produces a greater and finer stock of Rhubarb, and utilizing the ground to a more satisfactory return. There are two very important ways of growing this crop. The first in growing it extensively for market as with us. The other growing for

private use, as placing roots along fences in small plants or fruits, or most anywhere where it will receive the necessary space. This plan is important because it can be carried out in small gardens and people will become more acquainted with the habits of its growth in giving plenty of room. Separate hills planted here and there in the garden and among small trees along fences, or in small fruits, would soon convince growers of the most essential and important point in allowing sufficient room for it to grow, as we find by experience that it is impossible to grow hills in too small a place, and receive the best of results. They will also be convinced that it is unprofitable as well as impossible when growing it extensively for market, as with the market gardeners and with us, to give the hills too small a space. When market gardeners are limited for space they might plant as close as three by four feet, but I would not advise any closer. Four by four or four by five feet will give the finest and most profitable crop that can be grown. Eyes or buds separated from the old roots of five or ten year old plants, are generally used, although healthy yearling plants may be used with good results when others can not be obtained. These are generally planted at the close of the Rhubarb season, which is the last of June. Only large healthy roots should be planted, all others should be thrown away, as bad goods are always dear, and more especially in the case of unhealthy roots. Rich manure and composts should be used liberally in the spring, the ground should be well loosened between and around the hills so the manure, sun and rain can easily penetrate, which will give nourishment

and promote them wonderfully. Seed stalks should be removed as soon as they appear above the leaves of the other stalks, as they draw heavily on the roots. The beds should be kept clean of all weeds and grasses, especially Canada thistles and quack grass. If the finest quality and largest size of stalk is desired it should not be pulled excessively. When pulling always leave the slender stalks if they are short enough so they will not be injured by the wind, if not they had better be picked. Never place coarse litter on the beds in the fall if you wish to pick it early. This plan should only be practiced on young beds. Always plow a furrow in the fall along side of the rows, throwing a part of the soil back, to give the sun its full power in drawing out the frost in the spring; this being essential for early picking. Last, but not by any means least, we should have the best variety which is about as necessary as anything else. The Mammoth Red is by all means the very best for every purpose. By taking all these things into consideration and following them as I have stated no one can help but have success, and which I think I can assure them.

RHUBARB OUT WEST.

Quoted from Currie's Monthly Horticultural Journal.

In conversation recently with a gentleman from Omaha, Nebraska, who is engaged in horticulture there, we learned that in that country Rhubarb is in season all summer. Our informant said that he believed that vegetables can be grown to greater perfection there than in any other part of the world. He has been engaged in gardening for a good many

years in several sections of this country and Europe. but in all his experience he never saw such Rhubarb as is grown in Omaha. In our state as in every other quarter of the globe, as far as we have learned with this one exception it is only for a month or two in spring and early summer that Rhubarb is tender and luscious to be eaten with a relish, but in Omaha it would appear it retains its delicious flavor, and is tender and not stringy through the entire summer. We presume it must be the climate and not the soil which conduces to this unusual result.

RECEIPTS FOR THE USES OF RHUBARB.

PIE PLANT WINE.

Rhubarb is used in large quantities for wine called Pie Plant Wine, and is becoming to be quite a popular beverage. It is a very pleasant drink, and has received high praise by many. It should be left several years before it is used, to give it a pleasant and wine like taste, or for an example it is the same as all other wines the longer it stands before it is used the better it is. The following is one of the best receipts for making pie plant wine. To one gallon of juice add one gallon of rain water, two and one half lbs. of Muscavado sugar, or common brown sugar, two gills of cologne spirits, or California brandy. It can be made in any quantity desired in proportion to this receipt. It should not be made before the middle of July, then the juice is more mature, or in a better condition for that purpose. After it is made it can be put out in a shed or barn or any covered structure to keep it out of the sun. A warm cellar is a good place, as cold nights will not stop fer-

mentation. After it is made put it in barrels or jugs, which must be full; if in jugs, leave the cork out so the punice can run out, as in a few days fermentation will set in. If in a barrel leave the bung out. It will probably ferment about six months, this may be noticed by a hissing sound. A month or so after the hissing sound ceases siphon it off. After this every four or five months siphon it off, or drain it off carefully till no settlings exist. Then put it into a new barrel. If put in old barrels they are apt to be moldy and the flavor of some other brands of liquor might spoil the taste. The best sugar to use is imported Muscavado, which is the raw material from which loaf and lump sugar are obtained by refining. The common brown sugar that is sold by grocers is generally used for private use, or in small quantities. Granulated sugar can also be used but does not give it as nice a flavor, and makes the wine a light color. After it is racked off it should stand in the coolest part of the cellar to keep the warm air away from it for fear of a second fermentation, which would cloud it in looks. Pure water should be used, but not any tinged with a mineral taste. If the brandy is full strength there will be little or no fear of a second fermentation. Any liquor may be used, but not alcohol, if you wish to flavor it, as that only gives it strength. The need of spirits is to give it flavor, as well as strength, and to keep it from second fermentation as well. I consider pure cologne spirits preferable to other liquors, as it is strong and imparts no odor. Barrels that have cologne spirits in are safe to use, as no flavor will come from them.

RHUBARB TART.

To one quart of stewed Rhubarb add three-fourth pounds of granulated sugar, five eggs, five ounces of pulverized crackers, after the Rhubarb is stewed put through a seive. The other ingredients should be mixed well. Use only a bottom crust and bake three-quarters of an hour.

RHUBARB PIE.

Peel and stew Rhubarb. Add juice of half a lemon, well beaten yokes of two eggs, and sweeten with a half cup full of granulated sugar. Line pie tins with a good crust, and fill the tins with Rhubarb; bake until the crust is a light brown, beat the whites of the eggs to a froth adding three tablespoonsful of powdered sugar. Flavor with nutmeg or vanilla and spread over the top of the pies, place in the oven and leave till a delicious brown.

PIE PLANT PIE.

Wash and peel. Place in a chopping bowl and chop up fine, turn off the juice. Line your tins with pie crust, fill up the pan with chopped plant, and one tea cup full of sugar, three tablespoonsful of cream or a piece of butter size of a hickory nut, cut in small pieces and place around on the plate, cover with pie crust and bake in hot oven.

CANNING RHUBARB.

Wash Rhubarb. Cut in small pieces. To every pound of Rhubarb add one-half pound of granulated sugar, bring slowly to a boil, stir at intervals to keep from burning. When thoroughly cooked through pour in cans hot and seal tightly.

CANNING RHUBARB.

To put up Rhubarb for winter use wash the stalks, cut in small pieces, peel, and place in cold water in jars and seal tightly.

RHUBARB JELLY.

Wash Rhubarb. Cut in small pieces stew to a soft pulp, squeeze out the juice. To a pound of juice add a pound of granulated sugar, place again on the stove and stew until thick enough for jelly, put in tumblers, cover top of jelly with a round piece of tissue paper saturated with whisky or white of an egg, cover top of tumblers with paper tying tightly.

RHUBARB JELLY.

Wash the stalks and let them dry, do not pare them. Cut the stalks up in pieces of one or one-half inches long. Place them in a porcelain lined kettle. To every eight pounds of Rhubarb add one and one-half pints of water. Boil until the small pieces are soft. Place in a jelly bag, do not squeeze the juice out, but place over something and let it drip. Add to every pint of this juice three-quarter pound of sugar, boil and fix same as other jelly.

PIE PLANT SAUCE.

A palatable sauce may be made by cutting up the the stalks into inch pieces, put in a porcelain lined kettle. To a quart of the plant add one tea cup full of sugar, stew slowly and stir at intervals to keep from burning; stew to a soft pulp and let cool.

RHUBARB JAM.

Always wash the stalks, do not pare them, cut into pieces an inch or so long. Weigh the Rhubarb.

To every pound of Rhubarb, add one pound of granulated sugar; place in a porcelain lined kettle; let it come slowly to a boil, then stir continually for half an hour; place in jars or cans and seal tight.

RELIABLE SEEDSMEN.

As the first great object of raising vegetables is to have seeds and plants fresh and true to name, I will recommend to my readers a valuable list of Seedsmen whom I have dealt with and found to be reliable.

The following are their names and addresses.

Peter Henderson & Co., 35 to 37 Cortlandt St., N. Y.

James H. Gregory & Son, Marblehead, Mass.

James Thorburn & Co., 15 John St., New York.

Currie Brothers, 312 Broadway, Milwaukee, Wis.

Storris & Harrison, Painesville, Ohio.

Wm. Henry Maule, 1711 Filbert St., Philadelphia, Pa.

Johnson & Stokes, Philadelphia, Pa.

Isaac F. Tillinghost, La Plume, Pa.

Wm. H. Thompson, N. Y.

**THE TIME USUALLY REQUIRED FOR VEGETABLE
SEEDS TO GERMINATE.**

Beets, ...	8 to 12 days	Lettuce, ...	5 to 10 days
Beans, ...	5 " 10 "	Peas, ...	5 " 12 "
Celery, ...	12 " 20 "	Onions, ...	8 " 12 "
Corn, ...	6 " 9 "	Parsnips, ...	9 " 14 "
Carrots, ...	9 " 15 "	Radish, ...	3 " 8 "
Cabbage, ...	5 " 12 "	Pepper, ...	8 " 12 "
Endive, ...	6 " 10 "	Salsify, ...	5 " 10 "
Cauliflower, ...	4 " 9 "	Tomatoes, ...	5 " 10 "
Cucumber, ...	5 " 12 "	Turnip, ...	5 " 7 "

**THE QUANTITY OF SEED GARDENERS GENERALLY
SOW TO AN ACRE.**

Asparagus, ...	4 to 6 Pounds.
Beans, Pole	in hills, ... 9 to 10 Quarts.
Beets, ...	in drills, ... 5 to 8 Pounds.
Carrots, ...	in drills, ... 2 to 4 Pounds.
Corn, ...	in hills, ... 6 to 8 Quarts.
Cucumber, ...	in hills, ... 1 to 2 Pounds.
Melon, Mush	in hills, ... 1 to 2 Pounds.
Onions, ...	in drills, ... 4 to 6 Pounds.
Peas, ...	in drills, ... 2 to 3 Bushel.
Potatoes, Cut	in hills, ... 10 Bushel.
Radish, ...	in drills, ... 6 to 8 Pounds.
Salsify, ...	in drills, ... 6 to 8 Pounds.
Sage, ...	in drills, ... 8 Pounds.
Squash, ...	in hills, ... 2 to 3 Pounds.
Turnip, ...	in drills, ... 1 to 2 Pounds.
Barley, ...	broadcast, ... 3 Bushel.
Oats, ...	broadcast, ... 3 to 4 Bushel.
Wheat, ...	broadcast, ... 1 to 2 Bushel.
Rye, ...	broadcast, ... 1 to 2 Bushel.
Timothy Seed, ...	broadcast, ... $\frac{3}{4}$ Bushel.
Barley, ...	broadcast, ... $2\frac{1}{2}$ to 3 Bushel.
Millet, ...	broadcast, ... 1 to $1\frac{1}{2}$ Bushel.
Buckwheat, ...	broadcast, ... 1 to 2 Bushel.

STANDARD WEIGHTS OF VARIOUS ARTICLES.

LBS. PER BUS.		LBS. PER BUS.	
Beans, ...	60	Onions, ...	54
Broom Corn, ...	46	Orange Grass, . . .	14
Buckwheat, ...	52	Peas, ...	60
Kentucky Blue Grass, 14		Rye, ...	56
Castor Beans, ...	46	Red top Seed, . . .	14
Corn, shelled, ...	56	Sweet Potatoes, . . .	56
Clover, ...	60	Turnips, ...	58
Corn on ear, ...	68	Timothy Seed, . . .	45
“ Meal, ...	50	Wheat, ...	60
Flax Seed, ...	56	Lawn Grass, ...	14
Cranberries, ...	40	Parsnips, ...	55
Hungarian Grass Seed, 48		Beets, ...	55
Millet, ...	50	Carrots, ...	55
Irish Potatoes, ...	60	Hemp Seed, ...	44
Oats, ...	32		

THE REQUIRED NUMBER OF TREES, PLANTS, ETC.,
TO SET AN ACRE.

DISTANCE.		NUMBER.	DISTANCE.		NUMBER.
$\frac{1}{2}$ ft. x	$\frac{1}{2}$ ft.,	174,240	4 ft. x	5 ft.,	2,178
1 ft. x	1 ft.,	43,560	5 ft. x	5 ft.,	1,742
1 ft. x	$1\frac{1}{2}$ ft.,	29,035	6 ft. x	5 ft.,	1,452
$1\frac{1}{2}$ ft. x	$1\frac{1}{2}$ ft.,	19,360	6 ft. x	6 ft.,	1,200
2 ft. x	2 ft.,	10,890	8 ft. x	8 ft.,	962
2 ft. x	$2\frac{1}{2}$ ft.,	8,712	10 ft. x	10 ft.,	435
3 ft. x	1 ft.,	14,520	15 ft. x	15 ft.,	194
3 ft. x	2 ft.,	7,260	15 ft. x	20 ft.,	145
3 ft. x	$2\frac{1}{2}$ ft.,	5,808	20 ft. x	20 ft.,	103
3 ft. x	3 ft.,	4,840	30 ft. x	30 ft.,	40
4 ft. x	4 ft.,	2,722	40 ft. x	40 ft.,	27

CLOSING REMARKS.

TO MY FRIENDS, GARDENERS AND READERS.

In this advanced age of man and science we must continually look for great things. With all the knowledge of present books, machinery and labor-saving tools, the gardener at present and in the future needs to be a director and not a man of drudgery. The heavy and tiresome work in times past can be mostly avoided now by horses and improved machinery. When the bright young men of this age open their eyes to the improvements in the agricultural world, and can see both money and pleasure in their undertaking and plenty of exercise for their health, talent for the brains, and a happy and healthy home, we may look for a higher cultivation of crops, larger yield, and greater profits in all and every crop. I have now finished my treatise, giving you the result of my own knowledge and experience in growing this vegetable, together with my personal observation in a town where several hundred tons are grown yearly, besides facts that I have received by corresponding in other sections of the country. Therefore I most sincerely hope that the readers of this treatise will appreciate its advice.

Established 1859.

Incorporated 1893.

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FOR HEATING

Green Houses, Dwellings, Conservatories,
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OFFICE:

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Sectional View of Improved Double Dome Boilers.

No. 21.

IMPROVED WEATHERED BOILER.

I wish to say a few words about my own experience in regard to the Weathered Boilers. I use them altogether in my Green Houses and find them to be what the manufacturers claim for them: Simple in Construction so as not to need an experienced hand, as they may be regulated as easy as a coal stove; Economical in fuel and durable in construction, not needing any repairs for years. Write to me for particulars.

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P. O. Box 24.

Bay View, Milwaukee, Wisconsin.

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CHOICE SEED POTATOES.

ALL THE NEW LEADING VARIETIES.

New Late Puritan Potato, ...
 . . . . Yield 900 Bushels Per Acre.

Send for List of Varieties and Prices.

Rhubarb Roots.

BEST VARIETIES for Market and Private Use.

Victoria, Medium Early, per dozen.....	\$ 2 00
“ “ “ per hundred.....	15 00
“ “ “ per thousand.....	150 00
Mammoth Red, used for main crop, most prolific	
“ Rhubarb grown, per dozen.....	2 00
“ “ per hundred.....	15 00
“ “ per thousand.....	150 00

Prices varied on large orders.

CABBAGE PLANT, READY BY JUNE 1st.

Fottler's Brunswick, per hundred, 25c.	Per thousand, \$2 00
Early Deep Head, “ 25c.	“ 2 00
Holland New, “ 25c.	“ 2 00

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I would like to say a word in behalf of the Quaker City Machine Co. That the Evans Improved Ventilating Apparatus put up in my houses are entirely satisfactory. They are simple to put up as each part is labeled with directions, work perfectly, and being made of the best material need no repairs whatever. These machines are made so as to be convenient for any shape of house. For particulars write to

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PATENT BRUSH SPRINKLER.

A practical Machine that will rapidly and successfully perform a work that has heretofore been slowly and tediously done by hand.

How many hands and horses it takes, how much time and money it costs, how the sprinkling you begin on a fair day is stopped by stormy ones? You know all this better than we.

But may be you do not know how easily, cheaply and quickly it is possible to sprinkle potatoes; that you can take a **STEITZ SPRINKLER** into the field, and in a single day sprinkle from 10 to 15 acres.

This way you do not need any hands to help, and only one horse; the machine does the work. All you have to do is to fill the tank with water and Paris Green.

FACTS WORTH KNOWING.

Only from 5 to 8 gallons of water and from $\frac{5}{8}$ to $\frac{3}{4}$ pounds of Paris Green are required to the acre.

Machines are all made to straddle two rows 2 feet 10 inches, or 3 feet 2 inches apart. Apply for circular to—

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