

measure, prevents the danger of root-chocking, for, even if the pipes were grown up with roots, the material above would act as a drain. To render the drains more perfect before the earth is filled in, there should be two inches of straw placed over the drainage material already in, and then fill up.

If the new soil used is of such description as to admit of its being incorporated at once with the soil already existing, this should be done by commencing at one side, and regularly trenching the whole garden right through, mixing the new soil well with the old to the entire depth the ground is stirred, adding at the same time a liberal dressing of manure. The question of depth in this operation of trenching will altogether depend upon the natural depth and character of the soil, and also the depth that has been gone to in previous trenchings. If the subsoil is bad or inferior, no portion of it should be brought to the surface; but a few inches of it may with advantage be stirred and left where it is for the present, the soil above it, and the essence of the manure washed down by rains becomes mixed with and gradually improves it by the time the land again requires trenching. In, say, three years, those few inches of bottom soil can be brought to the top, and a little more of the bottom loosened up and left as before. Where the subsoil is ordinary clay a couple of inches at this and every subsequent time the land is trenched may with advantage be brought to the top; but, where this is done, the work should be carried out in the autumn, or early winter, so as to allow of the clay getting mellow, and in a fit state to be forked in previous to the time of cropping. As the work proceeds, anyfold useless bush fruits, such as gooseberries and currants, that are too far gone to be of any further service, should be destroyed, as also worn-out unfruitful apples, pears, plums, &c.; but in this removal of fruit trees let there be due consideration as to the requirements of the spot, and what there exists to supply their place, remembering that however unsightly a tree may be, if it be fruitful it is of more use than the beautifully symmetrical tree, that is not in bearing condition. Many a gardener has found when too late his mistake when removing unsightly trees before he has got others in bearing condition to supply their places. This is also an excellent opportunity for root pruning any trees that are too vigorous; but in the case of such the operation should be completed not later than the end of January, or earlier if possible. I never yet saw root pruning done late in the season without serious injury being the result.

This renovating process will naturally cause an upset of many crops that cannot well be spared—things of a permanent character, such for instance as asparagus. The ground occupied by this vegetable should not be disturbed until fresh beds have been made, and got into bearing condition; this will take two or three years. The ground selected should be such as has been cropped with something as different as possible; say where gooseberries or currants have been growing for a considerable time. If the soil is of a fair description, it need not all be removed to the full depth of the beds, as it is sometimes done; if 18 in. be taken from the surface, and 2 ft. of new soil and manure be brought in its place, and well incorporated with 18 in. of the under soil, it will make ample preparation for growing this vegetable well. In the working of old gardens a great deal may be done to prevent their becoming exhausted by continually, as opportunity occurs, adding something to make up for the continuous drain on the fertile constituents of the soil by the different crops that are taken from it yearly. Soils of a naturally light description have a tendency to much sooner become sterile than those of a heavier, more retentive character; and without the continual addition of the necessary, but not over-plentiful manure to make out which large quantities of leaves are generally used, in the course of time soil of this character gets exhausted. If, instead of year after year working on this exhaustive system, no opportunity be lost of adding even in small quantities new soil whenever obtainable, a garden may be kept for almost an indefinite time, without getting into such condition as to require an operation of such magnitude as the addition of new soil in the quantities necessary, where complete exhaustion has taken place. It frequently happens that stable manure is used, to the exclusion of every other kind; for light, dry, sandy soils, cow or pig manure used alternately is preferable, and with such the soil will not so soon become exhausted. The high temperature which stable manure is often allowed to get to before use renders it little better than so much decayed vegetable matter. If the manure, of whatever description is used, could be taken fresh, and mixed with an equal proportion of loam or dry road scrapings, it would be much better used in such a way, and the evil under consideration would not occur.—T. B. in Field.

Growing Potatoes.

Hoary winter will soon shrink from the approach of mild spring, and it becomes us to send our thoughts forward to anticipate its coming. I want to tell my practical friends how I grow some things, and wish they may try my plans and report accordingly.

I will speak first of potatoes. This crop, being the heaviest grown on farm or garden, should be well grown or not at all. I will take for granted, then, that every farmer has prepared a piece of land for this crop; and as no one would be so silly as to plant potatoes in the same ground twice, if he could avoid it, I presume that there is a little corner somewhere of nicely turned old soil—better if clover, or a good stubble—on every farm. It has been no doubt nicely (and by that I mean heavily) manured, and well ploughed under, or better, if he has saved the manure, and often added litter, earth scrapings, &c., to it, and turned it several times, to be ready to apply in early spring after a good harrowing. If the latter, then, put on the manure and plough in deeply as possible; harrow and mark out as usual, by running your furrows straight as a line, three feet apart; or if for hills, thirty by thirty inches; plant shallow, say two inches, never deeply; turn ridges, so that immediately, on the first appearance of a shoot, they may be scraped down with horse scraper or rake. Keep clean from this time on, always forcing a little earth to the vines as they grow up, and then—but before I proceed to finish up, I want to say a few words, by way of parenthesis, about ploughing in manure. I have always taken the greatest pleasure and pride in ploughing; my furrows in ploughing up must be as straight as the furrows above for planting. My old "boss" when he gave me the first lesson in ploughing (and may I brag a little, being incontinent and say it was the first and last lesson in ploughing that any man could give me), said, "G. plough straight—you will do one third more work by it." Now in my experience I have learned that I cannot plough manure so deep even with a three-horse plough, but a good harrowing will bring up at least one-third of it to the surface. If then this is so, and you plant two to three inches deep, and you have ploughed eight inches—far deeper than the average—your plants will be within the reach of the manure and the roots within ten days growth of any portion of it. Therefore, plough deep, if you can, "while sluggards sleep"—but plough deep, any way, whether turning in manure or not, always hitting a little of the subsoil. I can hardly resist the temptation to go into this subject a little further but have not room, now, and will return, to it at some future time. So far I have said nothing but what every good farmer would naturally follow, but this is what I want done in finishing up the crop. Just as the vines are beginning to lop over, go in with a good two-horse plough and run two furrows in a row; running your plough down close to the row of potatoes, throw the turn over the other row—returning do the same with the row you have just left—this will bury your vines within two inches of their tops, and then—well, I will wait to hear from you what happens afterwards.—Cor. Country Gentleman.

Onion Raising.

Does it pay to raise onions? I have heard a great deal about the profits of the business, and have been told that on suitable land they could be grown for seventy-five cents a bushel, while they were almost sure to sell for a dollar, and sometimes bring twice that sum—these and similar things I have heard in favor of growing this particular crop. The past season I have been giving it a practical test. Owing to the drought I did not get more than two-thirds as many onions as I should if the season had been favorable. The best spots on my piece yielded at the rate of about two hundred and forty bushels per acre. Allowing this to be two-thirds of a crop it would give three hundred and sixty bushels. Some claim to obtain a great many more, even as high as nine hundred bushels an acre, but many good growers admit that an average yield, on good land, with good cultivation, will not exceed four hundred bushels. Of this, if a man does not own land, one-half is to be given for its use. The one who hires the ground furnishes the seed and does all the work even to preparing for the market the half which pays for the use of the land. In the four hundred bushels which he obtains he will probably find from twenty-five to thirty bushels of small ones, which are worth not more than seventy-five cents per bushel. But suppose we allow full price for all, place the crop at four hundred bushels, and call them worth a dollar a bushel when ready for market, and sold at the barn without expense for moving. This is allowing more than the average grower, in an average season, will

be likely to obtain, and makes no estimate for losses in any way. At the price which the best seed commanded last spring it would cost him sixteen dollars for seed. To take good care of an acre of onions would require the work of one man for five months, and he would need a sower and a wheel hoe. A man who would take good care of an acre of onions would be worth for common farm work, twenty-six dollars per month, or forty dollars per month if he boarded himself. At the close of the season he would find himself with two hundred dollars worth of onions on which he had done two hundred dollars' worth of work, and paid sixteen dollars for seed, besides furnishing tools with which to work. For the last two months of the fall he would be out of work and that at a time when labor does not command a high price.

Now allowing nothing for the risk, which is very great, and taking it for granted that he obtains a good crop and a fair price, we see that a man will not be likely to hire land and make onion raising pay. If he cannot, can the owner of the land profitably engage in the business? My own experience with this crop has been a great deal of work for little money.—Practical Farmer.

Compton's Surprise Potato.

Compton's Surprise has received the unanimous verdict for the most prolific potato cultivated at present. Yields of from 12 to 20 lbs. per hill are reported by the hundreds, and in one instance 25½ lbs. were dug from one hill. As a rule, the most prolific varieties are not of the best eating quality, but to this Compton's surprise is an exception. Thousands have testified that they never ate a better potato. Its uniform meanness of grain, combined with the purest flavor, and its snowy whiteness of flesh, which is not in the least affected by its blue skin, cannot fail to make it highly valued as a family potato. This variety shows a peculiar tendency to produce a "surface crop" not found in other kinds. Its rampant growing vines lying on the ground will frequently take root, and establish a new centre of production. Subterranean branches will also likewise grow above the surface, and form self-supporting plants which produce an additional crop of tubers.

BETTER.—A western correspondent of the *Fruit Reporter* raises largely of the beet crop, as it does not seem to exhaust the soil, and if kept clean, leaves it in excellent condition for the next crop. He sells them in market, the first thinnings when an inch in diameter as greens, in bunches of six for five cents; next, as roots, when three inches in diameter, three to five in a bunch, at the same price; while the late crop, 200 to 500 bushels per acre, brings 60 cents to one dollar per bushel. The Kassano, he finds the best early beet; the Early Blood turnip, the best general or intermediate crop; and the Long Blood, an excellent late variety.

MICE IN HOTBEDS.—When mice get into frames, as they often do, they produce a fearful amount of mischief in a few days, if not destroyed. This may easily be done by mixing sugar and butter or lard smoothly together, in which a little strychnine is incorporated; spread this on thin slices of bread, and cut into small cubes and distribute them among the plants, and at the same time, place vessels of water in some convenient place, where they may drink. Or if preferred the phosphorus compound sold by druggists for this purpose may be used, but we have always had the best success with the first named mixture. In either case care must be taken that the children do not have access to the prepared bits of bread.

A SELF-SUPPORTING KITCHEN GARDEN.—The finest kitchen garden in France is that of Versailles, which belongs to the State, and brings in a yearly revenue, taking good and bad years together, of about 20,000 francs, the produce of the sale of the fruit and vegetables raised in this useful work of La Quinte, gardener to Louis XIV. The Assembly has determined to apply this valuable property to the formation of a model market garden and school of horticulture. The details of the institution are not yet arranged, but it is presumed that it will be self-supporting, and that it will render valuable assistance in the development of horticultural science in France. The industry to the growth of which this school will, doubtless, largely contribute, is greatly on the increase in France. Fifteen or twenty years ago the exports of French fruit and vegetables, represented a money value of from eight to ten millions. That figure has now increased to thirty-five or forty millions, a proposition which would become even more rapid if market gardening in France were uniformly conducted on sound principles of horticulture, such as it will be the business of the proposed institution to exemplify and popularize.—Echo.