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For the Colonial Farmer.
RURAL TOPICS.

COST OF GROWING POTATOES.

In speaking of producing a crop the right word to use is "growing," or "to grow," and not to "raise," as is generally said, yet "to raise" is not absolutely an improper term, as it is applied to growing crops, but only less proper than "to grow." Let us now see what it generally costs to grow (or to raise, if you prefer that word) a crop of potatoes on good fertile land, such as will produce from 100 to 200 bushels to the acre? I will adduce my testimony, and my first witness is a writer in the *Country Gentleman*, who says: "The work should be done mostly by horses with labor-saving implements. The land, to be in good condition, must be free from seeds of weeds, so as to require no hand-weeding, but to admit of frequent horse-cultivation; and it should be deep and friable enough to facilitate easy planting and easy digging. It must of course be well underdrained, either naturally or artificially, especially if inclining to clay; and it should be deep enough to hold moisture in time of drouth. A case was met with a few years ago, showing the value of a deep soil, where a row of potatoes was planted on a covered drain, and the season being dry, it yielded nearly double the amount from parallel rows; the mellowed subsoil in digging the drain making all this difference."

PLANTING, &c.

There are some potato planters that cut and drop the seed, and cover it in one operation; but they are more or less defective, and I think that farmers had better cut the seed by hand, as is generally customary, and also drop it by hand. The seed may be cut on a rainy day, and a man and two boys (or girls, if you please), will drop and cover an acre a day, the drills three feet apart, and the seed from twelve to fifteen inches apart in the drills. The covering to be done with a one-horse plow, about six inches deep when the ground is leveled. This should be done when the potatoes are beginning to appear where the ridges made in covering are evened down—about twenty days after planting. It may be done with a smoothing harrow, with short teeth, without any injury to the potatoes; or turn a common harrow over with the teeth up, and load it with one or two large stones, and then harrow across the rows, and the work will be well done, the land made smooth, all weeds destroyed, and the potatoes just coming up. The entire after cultivation should generally be done with a horse, first perhaps with a cultivator, if the ground is hard, or very weedy, to be followed at the proper time with a horse hoe, and hilling the potatoes just enough to cover the weeds among them; and the digging should be done with a potato-digger, or a plow. The writer quoted above says: "On light soils, the digging may be performed by any of the cheaper diggers, which are made with prongs projecting in the rear of the plow; the soil being friable, the tubers are thrown to the surface. On heavy or adhesive soils, none of these implements work well, and we use a common plow, running just deep enough to invert the potatoes, picking up all thus brought in sight, and bringing the rest to the surface, with a common harrow. By a little practice, this mode makes clean gathering, not half a bushel per acre remaining in the soil. Two men usually harvest sixty bushels a day."

THE COST PER ACRE.

It is not possible to give any detailed cost of growing an acre of potatoes, that will apply to all cases, as it costs more in some soils than in others; and some farmers have better implements than others; but the following estimate is not far from being correct in most cases:—

Plowing one acre of land.....	\$2.00
Planting and covering.....	1.00
Planting and covering.....	1.00
Cultivating three times.....	3.00
Applying bars green twice.....	2.00
Digging and drawing in.....	2.00
Harvesting.....	1.00
Total.....	\$12.00

To this should be added one-half the value of any manure applied to the land, as half its virtues may be charged to succeeding crops; and if you please, you may add interest on the value of the land. I am sure that any farmer may do all the work for an acre of potatoes, as above stated, for \$15; and in some cases, the potatoes will not cost over fifteen cents a bushel, while the average will not, even when a good dressing of manure is applied, be over twenty-five cents per bushel. In some places, as at the west, where they grow from 300 to 400 bushels per acre, the cost is not over five cents per bushel.

VARIETIES TO PLANT, MANURE, &c.

I think that the best variety now grown is the Snowflake. It is a

variety that matures in September in New Jersey—being neither early nor late. Then there is the Early Rose, Late Rose, Peerless Brownell's Beauty, and Compton's Surprise, all very fine. In regard to fertilizers, stable dung is good enough, but when commercial fertilizers are used, potash should predominate. A dealer in such fertilizers, who undoubtedly has done his best to ascertain what formula produces the best crops, gives the following for one acre:

Ground Bone, 250 lbs.....	\$3.00
Oil Vitrol, 100 lbs.....	2.00
Muriate of Potash, 275 lbs.....	6.37
Superphosphate, 500 lbs.....	11.00
Sulphate of Soda, 100 lbs.....	1.50
Land Plaster, 100 lbs.....	1.00
Total.....	\$27.27

Here the actual potash (137½ lbs.) is the largest constituent in pounds but not in cost. Another dealer gives the following formula for 1,000 lbs:—

Sulphate of Ammonia, 180 lbs.....	\$9.50
Superphosphate, 500 lbs.....	11.00
Muriate of Potash, 275 lbs.....	6.37
Total.....	\$27.27

Probably the second formula is designed for an acre of land, but both are enough for two acres each, and I give these formulas only to show what commercial fertilizers are recommended for potatoes, which is of interest to farmers if they never expect to buy any.

SEEDING CLOVER WITH OATS.

Land may be seeded to clover with oats in the spring, but the oats should not be sown very thick. A farmer in Western New York says: "Having never tried the experiment, as we always sowed with wheat, I will state the successful result of a neighbor who wished to seed down an entire field, but being unable to do so with wheat, one-half being in sowed corn, he was obliged to seed with oats the coming spring. The other part of the lot was in oats, and then put to wheat. The land was in good condition, having had two crops of sowed corn and plenty of manure. It was put in good order, by careful plowing and cultivating, then rolled. The clover seed was sown about the middle of May, just in advance of the grain drill when sowing oats, which covered the seed. I could see no difference between the clover after wheat and the part after oats. Both completely covered the ground, blossomed the same year, and were successful. I am not in favor of the practice, as oats shade the ground more than wheat, rye or barley."

PRESERVING FENCE POSTS.

I copy the following from an English paper: "The proper seasoning of timber before being used in any sort of structure is far more important than the season of the year when it is felled, kind of timber used, or preservatives employed. There are paints, washes and heterogeneous stapes recommended for preserving posts; but each is comparatively costly, and only partially successful. One great objection to the application of solutions externally rests on the fact that the sap being confined, accelerates decomposition in the interior. Most foresters must have observed this. What I would recommend with fencing posts is—the materials, when felled, to be directly sawn into posts and stored under sheds thoroughly ventilated, where they will remain at least a year exposed to "sun and wind." The neck or part between wind and water of each post should be slowly charred over a strong fire—slowly, because our principle means heating the timber thoroughly to the heart, so as to extract any moisture which may be still lodged in the surface, and hardening a crust on the surface of the posts. Afterwards, to prevent the posts absorbing water, they should be well coated with coal tar, having its acid destroyed with fresh quicklime. The tar should be thoroughly boiled, to evaporate all watery matter, and applied boiling hot. A large tank holding the posts set on end, and filled with the scalding tar from a boiler, answers the purpose very well. Of course, the upper half of the posts can be painted when placed, *in situ*. I am fully convinced coal tar, properly applied to thoroughly seasoned timber, is far more effectual in preserving posts than creosoting, poisoning, cyanizing, &c."

Miscellaneous.

A lady in London got the idea into her head that the devil was in her, and hung herself. If women go to hanging themselves for a little thing like that, they are going to be scarce.

A Pennsylvanian had gained a holiday for the whole school by dropping his rubbers down the heater, and ever since he has been engaged at himself for not economizing and dropping them one at a time.

A clothier has excited public curiosity by having a large apple painted on his sign. When asked for an explanation, he inquired: "If it

hadn't been for an apple, where would the ready-made clothing stores be to day?"

The first umbrella appeared in England in the year 1777; but history does not inform us when the first umbrella disappeared, and who carried it off. Almost any man can tell about what time the last umbrella disappeared.

An Irishman who had commenced building a wall round his lot, of uncommon dimensions, viz., four feet high and six feet thick, was asked the object by a friend. "To save repairs; don't you see if it ever falls down, it will be higher than it is now."

Mr. Cherry asked his wife, the other morning: "What is the difference between bribing a man with a ten dollar bill to keep his mouth shut, and a mixture of Indian meal and water?" He almost took her breath away when he answered: "Why, you see, one is hush money, and the other is hush, honey."

An old bachelor thus complains of his washwoman: "It is awful annoying so have some other fellow's clothes left in one's room by the washwoman. Saturday we put on another fellow's shirt, but couldn't wear it. Although it was ruffled around the bottom, the sleeves were too short to button cuffs on, and there was no place for a collar."

HALTER-PULLING.—Take a small rope (say about half an inch, nothing heavier), about twelve to fifteen feet long, as the case may be; make a loop in one end about the shape of a common harness crupper; slip the tail through the loop, then run the other end through the terror of the backpad, thence to the hame or bit ring, then hitch your horse and let him pull. One pull of the tail will be enough, or two at the most. Few horses can be made to pull after a few trials of the tail-hitch.—*N. Y. Tribune.*

FERTILIZING WITH CHARCOAL.—The owner of a large vineyard on Kelley's Island writes me that a neighbor of his had a large grape vine growing not far from an old distillery which had a filtering apartment filled with charcoal; and a root of the vine, having found its way into the charcoal, filled the entire mass with its ramifications; the effect on the growth and productivity of the vine was remarkable. He intends, therefore, to try some experiments with powdered charcoal as a fertilizer. It is probable, however, that in the case of the eastern charcoal was saturated with fertilizing ingredients filtered from rain water, and hence comparatively little benefit may result from the application of charcoal unless mixed with richer ingredients. Saturating it with water, in which hen manure is dissolved would no doubt be very effective.—*Correspondence Country Gentleman.*

BLIND STAGGERS IN SWINE.—Hogs, like horses, are subject to the blind staggers. They are suddenly taken blind and staggering, and in a short time go into spasms, especially if it be a severe case of the disease. These spasms or fits last but a short time only, but recur at short intervals, and in one of these fits the sufferer usually dies. This disease makes sure havoc among swine where it prevails, and no farmer should be ignorant of a remedy to apply when needed. Cold water frequently dashed on the head, the administration of cathartics and infections of turpentine and oil is one kind of treatment recommended, and we know of no better. But in treating the disease, particular attention must be given to the dieting of the animals—a wild laxative diet being required for some time after the subject begins to recover and regains an appetite for food.—*Factory and Farm.*

BRAHMS NOT GREAT EATERS.—I often read articles in the papers from men who have had little or no experience in keeping Brahma fowls, stating that they are great eaters. As I have bred Brahma since 1852, I claim to know something about what it costs to feed them, and this winter's feed for fifty full grown Light Brahms is a fair estimate for any season. I feed thirty seven quarts of corn and wheat screenings, half of each and nothing else. My fowls on this quantity of feed often get too fat to lay well and then I cut down the quantity for a few weeks.

Before I procured the Brahms, I kept the ordinary dunghill fowls and I never could keep them on less than a gill of grain a day on an average, or about three hundred and sixty-five gills per fowl per year, being a bushel and a peck per year. It took seven quarts of grain daily for fifty full grown Brahms, it amounts to fifty-one quarts a year for each fowl, or a little over a bushel and a half per fowl, and I may safely say that the

quantity of feed required by all the small breeds of fowls is about a bushel and a half a year.

The Way to Fail.

Many I have known to fail in flower gardening because they commence at the top of the ladder instead of the bottom, and I thought it best that they should be told this fact. A lady has seen beautiful flowers in her neighbors' gardens, and resolves to have flowers next season. (I have a friend particularly in my mind.) Of course she wants the very best, and sees puffed in the papers, perhaps by editors who know nothing of the matter, or, advertised by some seedman, a wonderful new thing, from Japan or Timbuctoo, or some other outlandish place. This must be obtained at any cost. All the money that can be spared is invested in a few of these new and wonderful things. The fancy seeds are committed to the ground with a feeling of exultation. The neighbors, perhaps, have not heard of these wonderful acquisitions, and will open their eyes pretty wide when the flowers appear in their glory, and they find their flowers and gardens left entirely in the shade. As usual, a fall follows pride. Half of the new things not being adapted to our climate, never reach a flowering state; others are only slightly different in color or form from varieties we now possess, very interesting, perhaps, to the florist, or even the curious and experienced amateur, but of no use to the beginner. The good old Asters and Snooks, and Balsams and Petunias that any one can grow, were neglected, and disappointment is the result.

My advice is to commence with a few simple hardy things, and not too many. Do what you do thoroughly. One little bed with a dozen good plants is a delight; a whole garden full of starved, neglected things, is misery. I know you have always taught this. I learned it from your works. It needs repeating.—*Vicks Monthly.*

Culture of Potatoes.

As many are giving their experience on raising potatoes, I will give mine. Although my ground is plowed in the fall, I plow it again in the spring. I then harrow it until it is very mellow. With a plank I then make it very smooth and level, and with a shovel-plow I make furrows three and one-half feet apart and four or five inches deep. In the furrows I drop, twelve inches apart, potatoes cut in halves (split from end to end, or cut through the seed end), each piece being pressed into the earth by stepping on it. I then attach a chain potato to each end of a 4 by 1 inch scantling, making a bail six feet from the scantling in the centre; then hitch a span of horses to the centre of the rope, and ride over the furrows lengthwise. Should any remain uncovered, a man with a hoe can complete the job in a very short time. My potatoes are thus covered evenly, and come up even. As soon as they are fairly up, I go over them again with my scantling and cover them again. The last covering levels the ground smooth, causes the potatoes to set early, and delays the ravages of the bugs a week or more. When the potatoes are of a suitable height, I take a shovel-plow and hill up the drills slightly. When the bugs appear, I go over the drills with a common sprinkler holding twelve quarts, with a tablespoonful of Paris green in it. A man can sprinkle as fast as he can walk. When weeds make their appearance, I go over the field with the shovel-plow, raising the earth a little higher than before. The third time I put on the flanges, and thus scatter earth among the tops, to cover the weeds remaining in the hills. I never use a hoe, but go through and pull out any weeds that may remain.

As often as the bugs begin to appear, I use the sprinkler. I plant the early varieties, and as soon as ripe I dig them with the shovel-plow, having the flanges on. By plowing deep nearly all the potatoes are thrown to the surface. They are then sorted and put into the cellar, or marketed. My average yield, one year with another, is 150 bushels; average price, 40c per bushel.—*A FARMER, in Country Gentleman.*

Winter Management.

As a general thing when poultry of any description run at large, they are able to supply themselves with the necessary variety of diet which they require. We have no idea what an amount of garbage they hunt out and scratch over, finding something in each deposit that they desire or crave. They devour an immense quantity of what we might term uncleanly food, and yet the fowls do better to have their runs, and hunt out these morsels so choice to them. A large proportion

of their food consists of vegetable matter. The latter is necessary and indispensable to health. Everything that feeds largely on grain requires something to bulk, to distend the stomach, and keep the digestive organs in good working order, otherwise the bird or the animal cannot thrive.

Winter management of poultry is no small item if we are judiciously inclined, and have an eye to some income, no matter how small, from our hens. So long as the winter is open and the ground uncovered from snow, the fowl will in a great measure assist themselves, and if well fed, supplied with water, will give a fair yield in eggs, but it often occurs in our northern localities that the ground is covered with snow, for three and sometimes four months during the winter season. For the long period we must make some preparations.

An open shed, fronting the south, with gravel bottom, and where the cattle run, affords a pleasant scratching ground for them during the day, and is an admirable place, providing the roost be contiguous. The cattle trample the snow down, and beat out paths, which renders an easy footing for them from place to place. Thus they are able to obtain all the exercise they need through the day. In this manner they keep accustomed to the atmosphere, and can endure considerable degrees of cold. Only the combed varieties suffer in our climate when mercury drops down nearly or quite to zero, and even they are hardened, if exposed by degrees, and soon become accustomed to severe cold. When laying hens (which require vegetable food) cannot find what they need, they will eat hay, selecting the fine blades from well-cured meadow grass. Treated in this manner, Brahms do admirably well, and return a good profit in eggs. Laying hens require and must have, fresh water. Farmers, if they only know it, with a small expense and trouble, are well situated to become, not only poultry raisers, but breeders of choice stock, for they have conveniences at hand, the expense is not so much. They certainly can be large egg raisers.

Fowls, and especially laying hens that are confined, require great attention to keep them profitable and in good health, and without possessing the latter, they cannot be of profit to the owner. It is useless to confine pullets or hens and stuff them with grain alone, and expect any great amount of eggs. They must be provided with freshly broken clam or oyster shells each day or two, and either chopped cabbage or onions for greens. The value of these two vegetables for poultry is not properly esteemed. They are even better than potatoes. When the tax develops on us to supply the demand for green food, or its equivalent, we are simply astonished at the amount they will consume in order to satisfy their demands. Beside this, they must have grain. Those unused to the feeding of poultry for eggs, when confined, must possess a good store of patience and perseverance to wait for the returns, which will surely follow, if the age and condition of the birds be right.—*Country Gentleman.*

Trees Near Dwellings.

For some time back I have seen several articles taken from the health journals, in the *Witness*, respecting the unhealthiness of having trees planted in front of or near houses, which I think are calculated to mislead, and are not based on scientific principles. No doubt if a dwelling house is totally overshadowed by trees it will be injurious by keeping off the sun; but that it makes houses damper to have trees planted near them, I must, from long experience, deny. My own house fronts the north, with only a space of fifteen feet between the front of the verandah and the street, in which several large hedges, chestnuts and lindens are growing, and many friends ask: "Why don't you take these trees away; they must be so unhealthy and keep the house so damp?" Such, I tell them, is not the case; they keep the house drier by absorbing through their roots all the rain that falls, while the damp part of my house is at the rear where the southern sun shines upon it but where there are no trees to absorb the moisture in wet weather, the soil being a clay loam.

Taking a walk of about three miles a few days ago, to shorten the distance and out of an angle in the road, I went through the field; there had been a great deal of rain previously, and I found the cultivated fields and meadows very wet. One-third of the distance was through woods, part of the original forest, and although it was as flat and exactly similar in soil (a clay loam) and situation, there was no wet to be seen and the ground was as hard and dry as in midsummer, though the leaves had all fallen from

the trees a month previous. These facts show that trees, even during winter, absorb the rain that falls by their roots, and exhale it from their twigs and branches or use it, storing it up for future growth.

Some years ago a large number of fine evergreens died throughout the United States and Canada. I lost a number of very fine large trees of rare varieties. I attributed it at the time to the fact that for the three previous years there had been a great drought; the ground at their roots was perfectly dry and hard while the frost that winter had been very severe, penetrating the ground here to three or four feet deep. Thus while the trees were constantly exhaling moisture from their leaves and branches (the severe frosty winds in winter exhausting the sap nearly as much as the leaves do in summer), while between the drought and the frost they could absorb little or nothing by their roots to replace it, they consequently died of inanition. It is a well-known fact that the eucalyptus or blue gum tree of Australia, when planted in wet or marshy land where much malaria prevails, has made them comparatively healthy. This has in a measure been attributed to a peculiar health-giving principle exhaling from the trees or their gum. Though this may have some effect, as in the case of fir and pine trees, still, I think on more close observation, it will be found that the main cause is that the trees are exceedingly fast growers, and that their roots and leaves absorb the moisture with the malarial breeding matter, leaving the land dry and healthy.

During the late rebellion it was found that while the wounded soldiers died in large numbers in hospitals, those in tents under the trees, or in the woods, generally recovered. This showed that trees are really healthy instead of otherwise, as contended by the writers previously alluded to. Now, though I would not advise trees to be planted too near a house, or so thickly as to keep the sun off it, I would advise their being planted near enough for their roots, when well-grown, to occupy the ground around the house; and to increase the sanitary benefits derivable from them, I would strongly recommend the planting of them in the kitchen yard or at the rear of the house, where they are seldom now planted. A fine Norway spruce, growing in a kitchen yard, would absorb all the slops that might be always dry, and any moisture would sink into the roots at once instead of lying festering in the sun and breeding disease. In large cities this might not be practicable, as evergreens do not thrive where smoke and dust abound, but there are hardly any yards so small but that a horse-chestnut or free-growing English cherry, etc., could be planted which would soon grow large enough to keep the yard dry at all times. In villages, country and farm houses the trees would prove most beneficial in all heavy, damp soils.—*JAMES DOUGALL, in Montreal Witness.*

Best Food for Milk Cows.

In summer and autumn the farmer can, with a little labor, provide for his milk cows an abundant supply of food, corn, clover, peas, oats and rye will give all the variety that is needed for our dairy stock in addition to our ordinary pasture. But we must have recourse to other sources of supply in winter. They can live, it is true, on good, well-saved hay without other food, but this is not enough. For a cow giving milk, as much as for fattening animals, something more is required. When we take from her her pasture a cow giving milk, and confine her in the house to feed wholly on dry hay, the quantity of her milk must decrease, and with it any profit that might be made from her feed. But the farmer has without resources of food that may be raised on his farm. In winter as well as summer he can have all the variety of forage he can need at the mere cost of the tillage and care. There is always a profit to be expected from the feeding on the farm a large proportion of its products. The manure itself pays well for the labor.

Turnips.—The estimation in which this root is held for the feeding of stock is shown by the great area devoted to its culture by the best scientific and practical agriculturists. In England the turnip crop embraces annually not less than two millions of acres; and in Scotland half a million. Without the turnip the winter store of cattle food would be very scanty. Though turnips contain a large percentage of water, they are a very valuable addition to winter food for stock, and we have had animals fattened in good condition for the English market with no other food than turnips in addition to hay. There is an objection to turnips as food for cows giving

milk—they give an unpleasant flavor to the milk. To prevent this turnips are by some fed to cows immediately after being milked. By others a pinch of saltpetre is put in the milk. Both remedies we have known to be successful.

MANGEL WURZEL.—This root is preferred to the turnip for feeding milk cows. It yields with greater certainty a much heavier produce. In the reports of the Department of Agriculture we have returns of some crops of one thousand bushels per acre and upwards. It does not communicate any unpleasant flavor to the milk; this of itself is greatly in its favor. It keeps good till late in the season, even till our fall rye is sufficiently grown to cut for soiling. Late in the season it is better for feeding than early in winter, when it is often found to be too relaxing. Excessive feeding with any roots is liable to produce too great laxity, but when fed sparingly in addition to dry fodder, it is no more laxative than the health of the animals requires.

CARROTS.—There is no food more prized by English farmers for milk cows than the carrot. So far from giving an unpleasant flavor to the milk, it is thought by many to improve it, and that it improves the color of the butter of cows fed on it is well known. The Belgian or white carrot is generally grown for cattle food, as it yields much heavier crops than any of the red varieties. It is admitted that as far as yield is concerned, the Belgian stands at the head of the carrots, but it is doubtful if its greater yield is not more than compensated for by the superior qualities of the other varieties. Roots grown to a large size are almost always of inferior quality, and in the comparison of large Belgian carrots with the smaller long orange or other carrots, the nutritive properties of the large Belgian fall much below those of the other.

BEETS.—The sugar beet has very valuable properties for feeding, and is now becoming better appreciated. The proportion of saccharine it contains must make it very profitable for winter feeding as an addition to dry fodder. The chief feeding value of mangel is derived from its sugar, and the beet that is so rich in sugar may be expected to possess still greater value.

A ROOT PULPER.—We will merely add a description of a simple root pulper, an implement very desirable in root feeding to cattle. It consists of a cylinder of hard wood 18 or 20 inches in diameter, turned quite round and smooth, and of whatever length that may be desired. This is mounted upon gudgeons and armed with steel teeth made of half-inch square steel. The teeth are ground to a chisel point and screwed into the cylinder with the bevel of the points upward and projecting half an inch. The toothed cylinder is fitted into a box of hard-wood plank, and the box is to be supported upon a stout frame, which should be firmly bolted to the barn floor. The front of the box is projected snugly up to the teeth of the cylinder. The roots are shovelled into the box at the top, and are rapidly reduced to a fine pulp by the action of the sharp chisel points. The pulp is thrown out at the bottom of the box, where it is received upon an apron of plank, and from that it falls upon the floor or into baskets placed to receive it. A driving pulley is affixed to one of the gudgeons, so that it may be worked by a belt from a horse power. It is too heavy for a machine to be worked by the hand, although a small machine might be constructed upon the same plan if thought profitable to do so.—*Farmers' Advocate.*

"Run-Down" Farms.

The majority of Canadian farms are in the condition to which the homely but expressive term "run-down" is applied. A fox, or hare, hunted by dogs and mounted men, being going until exhausted. All its strength gone, it falls a prey to its unrelenting pursuers. It is "run-down." The virgin soil of this country started in the race of improvement with a rich board of strength, unrelenting as a "meat" of hunters, the first settlers cropped away at it until exhaustion set in, and like the poor fox we have, the soil was "run-down." Under a proper system of culture, not only will the original productiveness of the soil be retained, but it will be constantly increasing. A farmer should carry on his business just as a thrifty merchant does, who is not satisfied with merely obtaining a living profit, but aims to add continually to his stock-in-trade. The fertility of his land is the farmer's stock-in-trade. He should not only maintain the stock, but increase it. A merchant can sometimes realize considerable cash in hand by running his stock low, but he must replenish without

delay, or the business will stop. Customers will not long continue to come to a shop where they fail to find what they ask for. In the case of the merchant, it is comparatively easy to replenish an exhausted stock. He has only to go to the wholesale dealer, and order a new supply. At most, he only needs to wait long enough to import fresh goods. He can quickly fill up his empty shelves. It is not so with the farmer. Time and patience are needed in order to replace the stock which has been used up by an exhaustive system of farming. If barn-yard manure were sufficiently plentiful and not too costly, and if it could be had as easily and quickly as dry goods can be got from the wholesale houses, the case would be different. But manure is always scarce and dear. There is never enough of it on hand to meet the demand, and by the time it is bought and hauled to the land it is too expensive. The merchant can count on a profit after paying the cost and carriage of his stock, but a farmer must get his manure within a certain limit of expense, or it will not pay.

Even in the vicinage of large towns and cities, it is questionable if a farmer can buy and haul manure to advantage. The writer has lately settled on a "run-down" farm within two miles of a town of several thousand inhabitants. Manure cannot be bought for less than 75 cents per load. Only four loads can be hauled per day. A team and man are worth \$3 per day. That makes the cost of the manure \$1.50 per load. Twenty loads per acre is a moderate application. It would cost more than the price paid a year ago for the farm, to manure it at that rate. A cheaper method of recuperation must be found, or plainly farming will not pay. The thing must be done by slower and less expensive process. The manure must be made on the premises, or dropped by sheep and other stock on the poverty-stricken soil. This is what makes it so deplorable that land should ever be "run-down." It requires either long time, or lavish outlay of capital to restore lost fertility. There are other means of recuperation besides the home manufacture of manure, such as systems of cropping that bring a steady gain of productiveness to the land, but they all take time, and "while the grass grows the horse starves." How is the farmer to live while he is getting his land into condition to support him? It is to be feared that many farmers do not properly understand what ails their land. We often come across venerable old settlers who, like veteran soldiers, take pleasure in "shouldering their crutch," and telling how "fields were won" from the woody wilderness, and made to produce crops unheard of now-a-days. They think the climate and seasons have sadly changed since the good old times when thirty and forty bushels of wheat to the acre were harvested year after year. No doubt the climate and seasons have changed materially since the primeval woods were cleared away. But the change has not all been for the worse. Sunshine and fresh air have been let in, marshy places have been dried off, good roads have taken the place of log roads, and there are mills and markets close by. Produce was worth very little in the days when such bounteous yields were obtained, and the low prices were given "in trade." Now every product of the farmer commands ready cash at fair paying prices. Commerce comes knocking, purse in hand, at the farmer's door, for everything he can raise. With the exception of greater liability to drouth, and more exposure to wintry winds, there are no climate changes detrimental to the business of the farmer. Fertility of soil, drainage, and where practicable, irrigation, are effectual antidotes to drouth; while shelter by means of evergreen walls and belts of deciduous trees will furnish protection from the biting blast. There is no use in disguising the fact that the great evil affecting our agriculture is poverty of soil, occasioned by over-cropping without manure. Our farm above referred to was once covered with magnificent tree growths indicating a soil of surpassing fertility. The timbers in the old barns, built more than forty years ago, bear witness to the productiveness of the land then. We have recently had occasion to take down an old log building and cut up some of the timber for other uses. There are rock elms that almost defy cross-cut saw, axe, anger and chisel, so tough is the fibre, and so close the grain. It was no barren soil in which these monarchs of the forest once grew and flourished. The land was originally rich. Its rank humus was the accumulation of ages. But that store of wealth has been wasted in riotous farming. It ought to have been carefully hoarded, like so much capital, and only the interest, as it were, expended in annual croppings,