too rich, and if sown to grain it all lodges, the straw is almost worthless, and the grain does not fill If potatoes is the crop, one will have a good growth of vines and a legion of small potatoes. If grass land, the grass where the heaps lay is all killed out, and in return noxious weeds come in.

In building barns many make a mistake by not having more room in the manure cellar. It should be at least nine feet high—ten is better—with trough shape at the bottom, and cemented so as to preclude the possibility of losing the best of the manure. The stable should be 16 feet wide, so as to drive in with muck or other absorbents, and there should be a space back of the trench, three feet wide (like a bin), and 3 or 3½ feet high, for storing absorbents. With such a stable, where the cows are kept in at nights, the year round, and the manure applied in the fall, instead of having a farm running down, it would make one smile to see the increase in the crops. Who says my way is not a good one?

How to Use Muck.

The *Country Gentleman* says:—A correspondent informs us that he has a large muck bed on his place, from which he is now drawing out to dry ground, and he wishes to know the best way to apply and use it. In answer we may state that there are three distinct ways, namely: 1, drawing it out and spreading it at once on the land: 2, using it in forming compost heaps; and 3, applying it as bedding for animals in stables, or for spreading in cattle yards.

1. Swamp muck, as commonly seen in a moist state, is about seven-eighths water. In this condition it is of little value, unless applied directly to land, thoroughly harrowed into the soil to intermix the two completely, and then ploughed in. But there are very few cases where this will be of use. The muck must be black, and the vegetable matter well decomposed; if brown and fibrous, it will not answer; the more nearly it resembles the leaf mold of upland woods, the better it is for this purpose. The vegetable matter which constitutes swamp muck is more imperfectly decomposed and disintegrated under water than the leaf mold of upland woods, and at the same time it contains usually more or less of several vegetable acids, all of which temporarily diminish its value. In addition to these drawbacks, muck alone will be of little use if applied to soils already supplied with enough vegetable matter; it will only be carrying coals to Newcastle. Hence the reason that so little beneficial effect is so commonly produced where fresh muck is applied as a manure. In other instances, however, the fertility has been increased where it has been taken from swamps that have no outlet, into which fertilizing elements have been washed from soils, or where various animal matters have accumulated. If a running stream passes through the swamp, much of these valuable matters will have been carried off

It will therefore be seen that the varying conditions, both of the soils and of the muck, may produce greatly varying results, and the only satisfactory means to determine whether applying muck directly to land will be useful, is to try the experiment first on a moderate scale.

2. Muck, in its common wet state, being about seven-eighths water, it is important to dry it; it for use as an absorbent of liquid manure, when already saturated, it can take in no more. If thoroughly dry, it will absorb and hold several times its weight of liquid manure, and here lies one of its valuable qualities A very common reason of its partial failure or the little value found in muck, when used as an absorbent, or in compost heaps, is from this very reason—the absorbent has already taken up all the liquid in the form of water that it can hold.

It must therefore be thoroughly dried if practicable; and at least partially dried in any case. It is therefore important, both as assisting in the removal of the water, as well as facilitating the work of drawing out, to drain the swamp, beforehand, when an outlet can be had. But whether drained or not, the muck must be placed on as dry a spot of upland as can be had. The drainage of surplus water from the heap, and the exclusion of moisture otherwise absorbed from the earth below, could be facilitated by placing the muck-heap on a bed of rails, poles, coarse brush, or loose planks or slats. When the heap is finished, cover it with a thatch, to throw off rains, and admit evaporation through the thatch; or a shed placed over it, far enough to allow the winds to blow freely between the two, would answer well. In the course of a few months, the heap may be dry enough to use. A small heap will, of course, dry sooner than a large one; and a long one sooner than the same amount in a compact heap.

This dried muck may then be used to great advantage in forming compost heaps. The manure and the muck should then be placed in thin alternating layers—the thinner, the more perfect and easy the final intermixture in stirring over. Usually, about twice as much muck may be employed as manure, but the exact proportions are not essential. There should be enough muck to absorb the liquid and volatile parts, and this will depend partly on the character of each. If the manure is fibrous or with much straw, a less proportion of muck will do than where the manure is rich and solid; and where the muck has had clay washed into it while forming, less will be required than when it is exclusively vegetable.

To save labor in mixing over compost heaps, they should be made long, and rather flat, and then the working over may be done with ploughs and harrows, drawn by oxen or horses, by throwing the material alternately out and in.

In using muck for littering stables, it is especially important to have it dry. Wet muck is bad for the animals to stand or lie on, freezes easily, and absorbs little or nothing, after being previously filled with water Here is the secret of so many partial or total failures in littering. Anyone can easily imagine the great difference in value between a mass of muck already soaked with water to repletion, and another mass where all this water is replaced with an equal amount of liquid manure The difference is so great as scarcely to admit of comparison.

It is of less value for cattle-yards, because even if dry it soon becomes wet through by rains from above and absorption from beneath. It is better, therefore, to confine its use to covered sheds, unless easily had in great abundance for covering the barnyard.

A small portion of lime in powder, or of wood-ashes, may be advantageously used in forming the compost heap already mentioned; and these may sometimes be employed with advantage to neutralize the acids existing in fresh muck, and fitting it better spreading on land, when not mixed with yard or stable manure. The value of this mixture will greatly depend on the condition of the soil as to vegetable soil.

Thin Seeding of Wheat.

The following from the *Mark Lane Express* gives the favorable side of the question of the "thin seeding" of wheat. There is much to be said on both sides, this is one side:—

"The first instance we shall adduce as to thin seeding is that of Jethro Tull, who about the beginning of the last century occupied a farm or farms of 200 acres of his own, which he cultivated on perfectly novel principles, the first and foremost of which was "that thorough tillage is competent, with or without manure, to secure the profitable growth of any given species of cultivated plant year after year in succession." This theory he carried into practice for upward of thirty years with so much success that, instead of impoverishing the soil, he let off a part of it at one-third more rent than he had previously been given for it. He introduced the practice, more recently adopted by the late Mr Smith, of Lois Weedon, of sowing half the land in proportions to three feet, embracing three rows, having unsown intervals of the same breadth between them, and he found that he could grow heavier crops on half the land than his neighbors did on the whole. Mr. Smith, too, practised this plan for nearly twenty years, and produced on half the land from thirty-five to forty bushels of wheat per half acre. The amount of seed sown was from one to two pecks per acre, no more being ever applied. Mr. Hallett, of Brighton, offers another example of this seeding. His farm or farms consist of about six hundred acres, a considerable portion of which consists of "down" land, having from four to six inches of soil lying on a chalk subsoil. It is unnecessary to go at length into the system adopted by Mr. Hallett, whose object is to produce a quality of wheat founded, like superior cattle, on an authentic pedigree. His system embraces thin seeding as a first principle. Thus, sown early, one hundred acres are seeded at the rate of one bushel to six acres, while the latest sowing is one bushel per acre. Mr. Hallett's neighbors seed at the rate of three bushels per acre; he therefore saves in seed alone from one hundred and eighty to two hundred and eighty bushels. As a sample of what may be done by this system, Mr. Hallett hired a large field, belonging, we believe, to the corporation of Brighton. It was such a barren spot as to be considered actually incapable of growing wheat. We saw this field under wheat seeded at the rate of one peck per acre, the product of which was a crop of forty-eight bushels per acre. One good effect of thin seeding is the entire absence of "under-corn"—that is, weak and short plants holding inferior ears and containing thin and imperfect grain. Heavy seeding always produces this defect, which detracts from both the quality and quantity of the return. There was no such under-corn in Mr. Hallett's crop, the ears being all one hight, and as level on the top as a table.

Another case is that of Mr. Piper, an Essex miller and farmer, who, for twenty-five consecutive years, grew wheat every year without manure, except a dressing of soot, and without ploughing the land, using only a hoe to scuffle in the seed, and planting in at the rate of one and a quarter pecks per acre. It was said that the produce exceeded by a quarter (eight bushels) per acre, more than obtained by the neighboring farmers, and in one season reached to seven quarters per acre. Like Mr. Mechi, Mr. Piper was accustomed to send annually a printed statement of the profit and loss accrueing in the season. Mr. Miller, the curator of the Botanical Gardens at Cambridge, inserted an account of the experiment which he undertook, in the Philosophical Transactions of the Royal Society:—"In the month of June, 1866, sowed some wheat, and on the 8th of August one plant was taken up and separated into eighteen parts, and replanted. These plants were again taken up and divided, in the months of September and October, and planted separately to stand the winter, and this division produced sixty-seven plants. These were again taken up in March and April and produced five hundred plants. The number of ears thus formed from one grain of wheat was 21,100, which gave three pecks and three-quarters of corn, estimated at 576,840 grains. The land was of medium quality, and no manure applied."

An acre of land contains 43,360 square feet; three bushels of wheat contain at the rate of Mr. Miller's wheat, 1,832,531 grains, which, divided by 43,460, the number of square feet in the acre, gives 42 grains of seed to the square foot! Is it surprising that frequent failures of the crop should occur with such crowding of plants which, like human beings, can only be healthy and strong with plenty of room to develope their productive faculties?

Making Sour Hay.—The Austrian system of making sour hay is very simple. It consists in digging long graves or trenches, four feet in depth by six or eight feet in breadth. The newly-cut clover and grass is crammed into the trench and tramped tightly down. When the trench is quite full, so that the contents are a little above the surface, the whole is then covered up with a foot or fifteen inches of earth, just as a heap of potatoes is covered. Prof. Wrightson states that the preservation is complete, and the wetter the fodder when it goes together the better. No salt is mixed with the grass. He further states that this "sour hay" affords a capital winter fodder, and when cut out with hay spades it is found to be rich brown in color and very much liked by stock. The pulp left in the manufacture of sugar from beet is also preserved in the same way, and, it is stated, will keep fresh for five or six years Although Prof. Wrightson does not say so, still we imagine that green vetches may also be stored by the same method. When we formerly referred to this matter we expressed a wish that some of our readers would make a careful trial of the Austrian mode of preserving green fodder.—*London Times.*

Clover and Wheat Never Both Successful.—Mr. W. J. Towler, a noted agriculturist of New York State, writes:—Clover generally makes a poor growth in hard or baked soil. On heavy land, at least, the mellower and deeper the soil, the better will be its growth. Experience has convinced many farmers that a mellow seed bed, two or three inches deep, resting on a firm and rather hard substratum, is better for wheat than to have the soil mellowed to great depth. But what is best for the wheat crop is not best for the clover catch. I suspect that the difficulty often experienced in getting clover after a clover sod, originates in the fact that farmers have learned to only plough their summer fallows once, and do all after cultivation on the surface. Under the old fashioned practice of cross ploughing the summer fallow one or more times, the clover made a rampant growth, though the mellow soil absorbed a great amount of water and frost lifted the grain badly. The luxuriance of the clover is generally in inverse proportion to that of the wheat. Possibly something is due to the fact that a heavy grain crop dwarfs the growth of everything else; but I am also convinced that the conditions for the best growth of wheat and of clover are, in many respects, dissimilar. With the largest possible wheat crop, there will be little or no clover. Probably a better way, where the soil is rich enough, is to grow two wheat crops in succession—the first a large crop without seeding, and the second showing less wheat, but getting the field well seeded with clover.

Clay for Sandy Meadows.—Sandy lands that are yielding poorly may be improved often at little expense by top-dressing with clay. We have seen meadows made to yield largely, simply by dressing with a thin coating of clay hauled from an adjacent bank and scattered over the field during winter, where, by the action of frost and the spring rains, the clods were reduced to a condition to be easily broken and further distributed over the surface. Heavy clay lands are often benefited by dressing with sand or sandy loams. Fields are often located at a short distance from deposits of clay or sand, and may be permanently benefited by top-dressing in the way suggested. Sandy and leachy soils that are not retentive of manures may thus be often so ameliorated as to be made very productive and at comparatively little expense, if deposits of clay are near at hand. A few years ago a farmer living in the valley of the West Canada Creek had a large field of sandy land which was so unproductive as to be considered of little value. The land was ploughed in the fall and during winter the farmer set his teams drawing clay from a bank near the creek and close at hand. In the spring the clay was distributed over the surface as evenly as possible and harrowed in, and the field was then sown with grain and seeded down to grass. A good meadow was thus obtained, which proved productive for a number of years, though only a light coating of manure was applied from time to time, the field getting no better treatment in this respect than other parts of the farm where the soil was stronger and better. We have no doubt the field referred to would receive benefit by an application of clay, and we should take the risk of making the experiment on a small scale, to say the least; then, if the improvement and cost of adding clay proved satisfactory, a more extensive surface could be treated.—*Rural New Yorker.*