

Pointers About Underdraining.

Size of Tile.—The size of tile to be placed in a drain, says Prof. J. B. Reynolds, of the Ontario Agricultural College, Guelph, will depend upon a number of factors:

1. The length of the drain.
2. The depth and distance apart of drains.
3. The fall of the drain.
4. The character of the soil above.
5. The maximum amount of rainfall to be provided for in a given time.

The rate at which water will flow in a tile of given diameter, with a given grade, and the amount of water likely to reach the drain in certain extreme circumstances, have been made the subject of careful investigation, so that the following relations may be confidently stated:

- A two-inch tile will drain two acres, but should not be laid in a drain more than 500 feet long.
- A three-inch tile will drain five acres, but the drain should not be more than 1,000 feet long.
- A four-inch tile will drain twelve acres.
- A five-inch tile will drain 20 acres.
- A six-inch tile will drain 40 acres.

These rules apply primarily to mains and sub-mains. For laterals, the limits as to length above stated will apply, provided there is a good fall. Where the fall is slight, a larger size of tile is to be preferred.

Junctions.—Faulty junctions of laterals with mains are the cause of impeding the flow of water in the main, and of lodging silt and finally blocking the drain. It is sometimes best, when the lateral has plenty of fall, to make the junction two inches above the bed of the main. In any event, the junction should not be right-angled, but at an angle of 30 degrees, preferably. The silt basin is a valuable device in draining, and its use and importance cannot be too well understood. It may be used (1) at the junction of two or more drains; (2) in a line of drain where it is necessary to change the grade from a steeper to a less steep one.

Silt Basins.—The purpose of the silt basin is to collect silt or mud in a part of the basin below the line of tile, and thus prevent the silt from lodging in the drain and finally blocking the flow. In form, the silt basin is a small well, 12 to 14 inches in diameter, extending from 12 inches below the line of tile to the ground surface, where it is provided with a movable cover to allow occasional cleaning. It may be constructed of brick, stone or plank.

Practical Hints on Underdrainage.

Editor "The Farmer's Advocate":

One of the first things necessary in beginning underdraining, is to carefully ascertain where it is needful for the drains to be laid, so as to give the proper results. My own mode of placing drains is to put them where there is need of an open water furrow. An important part of the work is having a good outlet in the main drain, which should be a few inches deeper than the laterals.

The best time of year for underdraining is early in the spring, often before cultivation begins, and late in the fall. Also at these times there is sufficient water collected to make the levelling of the drains an easy matter. Besides, the work can be more speedily done when the ground is moist. In the absence of water in drain, the fall can be easily found by placing a spirit-level on a straightedge ten or twelve feet long, and putting it along the bottom of the drain.

For the digging of the drains, all that is required is a ditcher's outfit, which may be purchased at any hardware store for a sum not exceeding ten dollars.

Sometimes in beginning our drains we plow two depths with the plow, but the remainder, except the filling in, is done by hand. In digging laterals, always commence at main drain and dig against the slope. The depth of drain will be determined by the distance it is to draw water. A drain in our soil in Oxford County, from 2½ to 3 feet deep, is said to draw an area of from 30 to 60 feet. All my drains are 2½ feet, except the mains, which are a trifle deeper. The bottom of the drain must have a continuous gradual rise sufficient for water to run.

The next step is the laying of the tile, by all means the most important part of the work. Have the tile placed conveniently along one side of the drain, so that the man in drain can reach them easily and put them in place. He begins at the lower end, by making connection with main drain. This is of importance, and if done imperfectly often leads to trouble. A hole is made in tile in main drain large enough to enter tile from lateral. This hole is made with a chisel and hammer. The connection made, he proceeds up the lateral, laying each tile on the bottom of drain, and puts his foot firmly on each tile as he proceeds, thus making them firm, and making sure that the ends are pressed closely together.

Next thing done is the filling in of the drains. Go along the drain with spade, loosening enough of the top soil to cover the tile and keep them in place. The reason for putting the top soil on first is that it is more porous than other soil, and causes the drain to work better. The remainder of filling in is done with a team and plow.

Sometimes it might be advisable for a novice to leave the main drain till the last, so as to see if the

other drains are working properly. Thus far in this part of Ontario ditching machines have not been a success, costing more to do the job than hand work. The drains that I have laid cost from 16c. to 20c. per rod. Around here nearly all draining is done with three-inch tile, which are thought to give better results than a smaller size. Three-inch tile are \$10 per thousand; four-inch tile, \$16 per thousand; five-inch tile, \$25, and six-inch, \$36, and up to \$100 per thousand, loaded on cars.

The drainage I have been speaking of is for general farming, and is less thorough than for gardening or orchard work. I might add that drains give better results after the first year. J. C. SHAW, Oxford Co., Ont.

[Note.—Tile can be purchased for making connections of branch with main drains, having a crotch or T shape. It is better to use such a tile than to chip a hole out of a main-drain tile.—Editor.]

Plowing Matches and Prize Farms.

The spring is upon us, and many farm boys are looking forward to the day when they will go to plow for the first time; that is to say, to be in charge of the team, and wholly responsible for the work done. Many boys, when plowing, so long as they keep the team going and turn the soil over, think that this is all that is needed; and there are also many farmers satisfied with this condition of things. Others will try to cut a straight, clean, neat furrow; these are the boys that make plowing a pleasure instead of hard work, and, as a rule, they will be driving a good clean, neat team. Not only that, but we also find the boys that drive such teams drawing their numbers for the plowing-match ground, where there is such a competition held within reasonable distance. There is nothing that a young plowman enjoys better, when he has plowed a field, than to be able to say that he has not put a crook in it; that is to say, he has cut every furrow true and plowed each land square. When the writer was seventeen years of age, three other teamsters and himself would compete for small prizes each day they went to plow. They would arrange the matter among themselves, and quite as much excitement would be caused as though a general plowing-match was taking place. Not only had we the satisfaction of seeing neat work done, but also there were the benefits which the master reaped—the effects of good plowing.

Now, the first step to be taken to encourage the young plowman is the organization of more plowing-matches. This requires the aid of only a few farmers in every district. Perhaps some farmers will think it would not pay them to give prizes, but those concerned in a plowing-match not only get their funds returned, but fifty times their value. In fact, the full value obtained from well-plowed land is not known. There are several reasons why plowing matches should be held more often in Canada: First, they stimulate the plowman's mind; secondly, they teach boys to take an interest in their work; thirdly, they help to increase the value of the farms which have made Canada what she is to-day.

Another suggestion, Mr. Editor, I would like to make, is a competition among farmers themselves, to demonstrate who can grow the best crops and show the cleanest farms.

I believe this subject is before the Ontario Agricultural and Experimental Union at present, and it should be encouraged as much as possible by all interested in farming.

T. H. TWELTRIDGE.

Improvement Discouraged by Taxation.

Editor "The Farmer's Advocate":

I think that the question referred to by "FARMER" in your issue of March 29th is a very important one, and is a question which requires attention at the present time. The "building" taxation is not the only troublesome feature of the system. One of the most noticeable evils of the present system can be seen when we look over some districts, and find a great deal of untilled land—not wood-lots, but swamp-lots. We have land right in our township that is of the very best for raising grain and hay, which can be put in a tillable state for \$15.00 per acre, and yet areas of 50 acres—yes, even 100 acres—are still untouched. Why is this? There may be more reasons than one, but to my mind the chief reason is this plan of taxing a man a little extra every time he causes something to grow where nothing has grown in the past. This surely seems unreasonable. The thought given out by Henry George, viz.: "That a system whereby a man is taxed for making two blades of grass grow where only one grew before, is barbarous," should be pondered over by every progressive farmer. Now, it has been proven in the past that one of the best ways of making a subject of this nature a live one is to have it discussed in "The Farmer's Advocate," and I sincerely hope that other subscribers will give their views, and that we may have some result, in the way of legislation, from the discussion. G. A. McCULLOUGH, Russell Co., Ont.

Cuts His Straw at Threshing.

Editor "The Farmer's Advocate":

I have been much interested in the discussion of how to apply farmyard manure. For a number of years we have hauled our manure direct from stable to field, and spread on ground intended for hoed and spring crop. I notice that a number of your correspondents object to putting manure on spring crop, because it clogs the cultivator and seed drill. This trouble we overcame by cutting all our straw short at threshing.

I often wonder why the practice of cutting the straw is not more general. It will pay many times over. First, at the threshing, it will go into much less than one-half the space, and can be kept under the roof. We set a cutting-box right behind machine, and one man at cutter will take care of the straw. The less labor required in straw-mow more than pays the five dollars extra charged for cutter. All authorities agree that the liquid manure is the more valuable. If this is true the short straw has an immense advantage over long straw, because it absorbs the liquids a great deal better. If you have a wet stable floor, try short straw—the shorter the better. It makes much nicer bedding, and does not slip and get pushed back like long straw. I claim that pulling manure made with long straw out of a pile is the hardest work on the farm. With short straw it becomes one of the easiest; the time and elbow grease saved in handling it is considerable. But the greatest advantage of short over long straw is that it may be spread thickly on the land, and does not in the least interfere with spring cultivation. It mixes easily with the surface soil, and rots more quickly.

Waterloo Co., Ont.

YOUNG FARMER.

Try the Split-log Drag.

Our American exchanges are still loud in their praises of the split-log road drag, illustrated in our issue of April 12th. "Begin at your own road gate," is the rallying cry, "and drag to your neighbor's gate in the direction of town." Do it when the roads are muddy; pass along one rut going, and return along the other. Do another round and quit for the day. When the road begins to dry after the next rain go over it again, and so on throughout the season, especially during the fall and spring. They say no one will believe how effective the drag is. It will not make a good road out of sand, for sand does not make a stiff mud. It will not make a good road where there is not sufficient drainage. It will not work well among stumps and stones, nor where the road is covered with grass. But it will prevent grass growing in the roadway, will preserve a crown where there is one, and will keep clay roads in better condition than any other means of road-working. Let some of our readers try it, and report results to "The Farmer's Advocate."

Tarring Fence Posts.

Editor "The Farmer's Advocate":

At this season of the year, when so many are building fences, perhaps a word of advice which observation has taught me to be all right would not be out of place re tarring the posts. A neighbor has a fence which was built about ten years ago with very small, inferior posts, but which were tarred, and is standing the test thoroughly. There is not any decayed wood on these, while others which were put in about the same time, but without the coat of tar, have decayed badly, especially near the surface. When we take the trouble to put up a post fence we want it to be as durable as possible, and this will save the posts. Tar can be bought from any hardware merchant, and is easily applied.

Peel Co., Ont.

JAS. B. ROSS.

Poor Seed Dear at Any Price.

Order the seed corn early, and make a germination test. Place a hundred representative grains between moist cloths in a plate set in the window. Invert another plate over it. Keep the cloths moist, but not covered with water. In a few days count the number of kernels that have germinated, and calculate the percentage of vital seeds. It is well to conduct the test in duplicate. There is no money in planting seed that will not grow, no matter how high a price was paid for it. If it was dear to buy, it will be a good deal dearer to plant.

Never Throw a Smut Ball on the Manure Pile.

Treating seed corn for smut does no good, says the Minnesota Experiment Station. The only way to decrease the amount of smut in corn is to pluck off the smut balls and burn them. Corn smut spreads rapidly, if the smut balls are thrown on the manure pile and the manure spread on corn fields.

"Is there much corn grown in your section?" we asked a farmer of our acquaintance the other day. "Yes, quite a lot." "Many silos?" "Several." "Those who haven't silos shock the corn and burn it, leaving it out all winter for the stock to eat, and in spring they burn it to get rid of the crop."