

under the provisions of this Act shall be taken in the presence of:—

(a) The person who sold or offered, exposed or had in his possession for sale the said seeds; or

(b) Two impartial or non-interested witnesses, and—
In accordance with the rules for seed testing, prescribed by the Minister of Agriculture, and shall be inclosed in a sealed package, together with a certified statement of the inspector, informant or complainant, which shall include the name and address of the person who sold, or offered, exposed or had in his possession for sale, the seeds from which the said sample was taken, the manner in which the receptacle, package, sack or bag was marked, and the section or sections of this Act in violation of which the said seeds were found or suspected to be sold or offered, exposed or had in possession for sale.

13. Any sample of seeds taken from any seed which are found or suspected to be sold in violation of the provisions of this Act shall be taken and forwarded to an official seed analyst within seven days from the date on which the seeds entered into the personal possession and became the property of the purchaser.

14. It shall be the duty of any official seed analyst to examine any seeds sent to him, in accordance with the provisions of this Act, by following the methods for testing seeds prescribed by the Minister of Agriculture, and to send one certificate of analysis of the said seeds to the inspector, informant or complainant from whom they were received, and one certificate to the seller of the said seeds, and to place one certificate on file in the Department of Agriculture.

15. The certificate of analysis of any official seed analyst on any sample of seeds forwarded to him under this Act shall be accepted as evidence in any prosecution of any person who may have sold or offered, exposed or had in possession for sale any seeds in violation of the provisions of this Act.

Draining.

A reader asks for some hints on underdraining, the smallest sized tile recommended for laterals, the size of tile required to carry the rainfall off fifty acres accumulating at one place, how to protect the outlet from frost, how to level the bottom of the drains, and how to prevent silt from accumulating in the drains?

In our April 21st issue, page 563, D. discusses the general principles of drainage, but to illustrate some of the details of the work, we might add a few remarks. Evidently, the land referred to by our reader requires a large drain through the main watercourse to carry off the surplus water on fifty acres. The average rainfall does not enter into consideration here, but the greatest rainfall that may come at any one time. Properly speaking, we should provide for the carrying off of the surplus water in twenty-four hours that may fall during the next twenty-four hours. In Eastern Canada, we may assume that the maximum rainfall at any one time will not exceed two inches. On the basis of a two-inch rainfall, C. G. Elliott, an American civil engineer, has made the following calculations for drains laid not less than three feet deep, and with a fall of three inches in one hundred feet:

For drains not more than 500 feet long, a two-inch tile will drain two acres. Drains more than 500 feet long should not be laid of two-inch tile. Three-inch tile will drain five acres, and should not be of greater length than 1,000 feet. Four-inch tile will drain twelve acres. Five-inch tile will drain twenty acres. Six-inch tile will drain forty acres, and a seven-inch tile will drain sixty acres. A long drain has a less carrying capacity than a short drain of the same size tile, laid upon the same grade. If we double the grade per one hundred feet of the drain, we increase its carrying capacity about one-third. The depth to which the land is drained and the nature of the soil will vary the conditions, so that the amount of water to be taken off may be much less. The fact that the soil when drained to a depth of three or four feet will hold an immense quantity of water, which will not for a time interfere with the growth of crops, allows us to use much smaller tile than if we were required to move all the surplus water in twenty-four hours. Deep drains require tiles of less capacity for the same area than shallow drainings, and an increased fall may also reduce the size of the tile required.

Before beginning the actual digging of the drains, the levels and grades of the field should be determined. In most cases where draining is done, there is not much question of sufficient fall, but the drain should be as level as possible, to prevent the accumulation of silt. To get the proper levels, always begin at the outlet, and level, by means of a spirit level, sighting along its top to a point farther up the course of the drain. In some cases, two grades can be made, where such a practice would obviate considerable digging (see Fig. 1).

The position and size of the lateral will depend upon the area to be drained. In Fig. 2 is represented a plan that is both expensive and un-

necessary, as the area between lines A and B and C and D is drained by the main, hence the uselessness of laterals on this portion of the land. Figure 3 represents a plan where the overlapping is not so extensive. Drains should be at least two and one-half feet deep at the head, and deeper if the land is a low, stiff clay. If there is a hard-pan, it is little use going very deep into it. When digging, stretch a strong line about four inches from the side of the drain, to guide in keeping it straight. Have suitable tools for digging, and do not make the trench more than twelve inches wide for a depth of four feet or less. In such a trench there will be room to work if proper ditching tools are used. Figure 5 shows a method of determining the level of the bottom of the drain. Where there is a quicksand bottom to a drain, it may be necessary to lay a board on the bottom upon which to place the tile, or

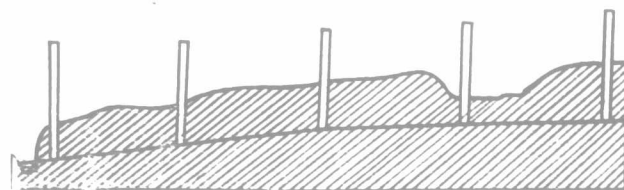


Fig. 1.—Diagram showing two grades in one drain.

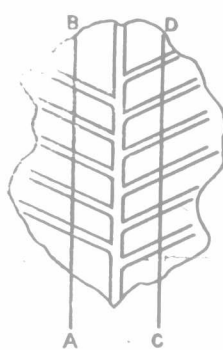


Fig. 2.—A common system of draining not to be recommended.

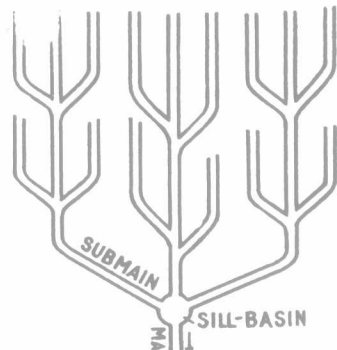


Fig. 3.—A very good system of drainage.



Fig. 4.—Drains adapted to suit the land.

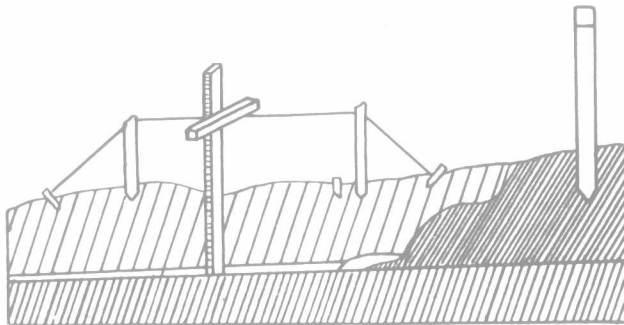


Fig. 5.—Diagram showing a simple plan of leveling the bottom of a drain.



Fig. 6.—A well-protected outlet.

the bottom covered with clay, or if the quicksand is left to dry a few days it may become dry enough to lay the tile.

One of the most important features to bear in mind in laying tile is to get them level and straight and well joined at their ends. Round tile are by all odds more convenient than flattened, as they can be turned around to be made to fit closely. After they are laid they should be carefully covered with coarse soil, well packed, to prevent silt getting in. Where there is a quicksand, one must be very particular about this point. Figure 6 shows a good method of protecting the outlet, though, most generally, no further precaution is taken than that of placing a heavy flat stone over the tiles at that point. Cement concrete tile is now being made and a few of these at the outlet would add to the durability of the drain.

The Corn Crop.

The prospects for an average crop of corn in Ontario this year is rather discouraging. The continued cold and wet weather has delayed the planting, and, in many places, caused the rotting of the seed, which, as a rule, was lacking in vitality, owing to the fact of the last two summers being wet and cold and the ripening and drying process incomplete. Attention early in the spring was directed in these columns to the wisdom of testing the germinating power of seed generally, and of corn particularly, before sowing, to ascertain in what proportion of it the vitality was strong, but it is feared that few followed the advice given. The weather conditions of late however, have been such as to try the mettle of the soundest seed, and in many instances the second sowing has proven a failure, as well as the first. It is yet not too late to plant with the hope of securing a fair crop of ensilage or fodder corn. The land is well supplied with moisture, and if warm weather comes the growth of corn may be rapid. With a good preparation of the seed-bed, and judicious cultivation afterwards, there may yet be secured a good yield of cattle food from this source, and, as observation has shown that fall frosts do not severely damage the crop for ensilage purposes, a later harvesting may be risked without fear of loss. Those who have doubts about the prospects for corn planted after this date may yet, on the land prepared for this, secure a good crop of millet, which makes excellent stock food when well saved, and there is also time yet to sow turnips with every hope of a good crop, and the preparation made for corn should answer well for turnips.

DAIRY.

Dairying at the Western Fair.

For years the want of proper accommodation for exhibits of dairy products, apparatus and demonstrations of an educational nature has been a standing reproach to the Western Fair. In fact, this exhibition has had no dairy building—no home for the country's best industry—but a sort of wooden annex to the horticulture and agricultural hall, where the temperature went where it liked and the crowds craned their necks in a vain struggle to see what was going on. Matters had come to such a pass that the director in charge of the department declared in the writer's presence that he had concluded that if the department could not be properly housed he would throw up the sponge. He did not propose to degrade the industry by asking dairymen to put up with such facilities any longer. In view of what had been done for the Toronto Exhibition, and recognizing the merits of the case of the Western Fair, the Provincial Government at the last session of the Legislature set aside \$10,000 towards the erection of a new dairy building at London, according to plans to be approved by Prof. Dean, of the Agricultural College, one of the most practical dairy experts in Canada.

Western Ontario agriculture sustains the city of London, and the Western Fair and dairying are two of its best allies. The Western Fair is admittedly one of the most successful Canadian exhibitions. The management has spent on these grounds out of their own profits some \$58,000 in recent years in permanent buildings. The Fair Association, not unreasonably, ask, before spending over \$10,000 in erecting an absolutely necessary structure, that there be some assurance of permanence by a twenty-year extension of the lease of the fair grounds from the city. They are, unfortunately, at once met with a nagging policy of a short-term lease that threatens to completely block the erection of the dairy building. One objector fears that the grounds will be spoiled in appearance by what is to be really one of the handsomest buildings, though small in size compared with the other structures. An economist wants the grounds sold for town lots, and streets run through them, thus blotting out forever "Queen's Park," with its fine grove of stately natural forest trees. To destroy this breathing place would be little short of vandalism. Rather let the Civic Improvement Society and the Park Commissioner take a hand in improving it as a resort for the people, towards which the Fair Board would gladly assist, and an annual home for this splendid exhibition, which for years has proved a drawing card for London, and one of its very best assets. Immense sums have been spent by the city and Fair Association on the existing permanent buildings and improvements, and the sober sense of a debt-burdened municipality will not authorize the folly of laying all this low and beginning another era of expenditures on a new site. In the interest of all concerned, we trust the council will promptly meet the Fair Board in a liberal spirit, so that the work on the new dairy pavilion will at once proceed, in order to be ready for this year's fair.