

Sometimes, it is utterly neglected until it has become an abomination of filth and dirt. It is needless to say that hogs will not be as thrifty under this state of affairs as if their pens were kept clean, and such care will prove a great material advantage to the farmer.

The house is not always built in such a way as to insure a thorough ventilation. For instance; if a cellar is not dug under every portion of it, no ventilation will take place underneath; an air close and stagnant will gather and permeate the floors to the rooms immediately above. When a cellar is provided, a current of air will exist all round the house, both in the living rooms and underneath them. All these defects the farmer's wife may remedy by leaving the windows open as long as possible during the day and night. There is no harm in night air, if the surroundings are kept clean.

Ventilation is not only necessary within the home but also all round it. For warm summer days how comfortable it is to feel currents of air round the house. These may be easily induced by a hedge of trees, specially of evergreens. The shade of a grove of evergreen trees keeps the ground cool under them, and this coolness, if the grove is large enough, keeps up a current of air which moderates heat round the home. This hedge, if properly placed, will also form a shelter against the cold winds in winter.

Light is no less necessary than pure air; indeed, pure air cannot be had without it. The effects of light are now well known. Health exists wherever it enters. No germs of disease can withstand its presence, it is the surest disinfectant available. Hence, the windows on every farm building should be large and numerous, so that all corners may be bathed in sunlight. To augment yet these effects and add to the cleanliness, the stables should be whitewashed thoroughly, at least once a year.

Little effort is required from the farmer to make his profession what it should really be: the healthiest of all occupations in which men engage. These improvements should be for him a strict duty, for not only the health of his family depends upon them, but the health of all those who draw their supplies from the farm is greatly endangered, should the farm be kept in an unsanitary condition.

C. MORTUREUX.

### THE IMPORTANCE OF SOIL CULTURE.

By Frank T. Shutt, M.A.F.R.S.C., Chemist, Dom.  
Exptl. Farms

In a previous article (May 15) the writer endeavored to show that good culture should, nay must, precede the application of commercial fertilizers if a profit from these concentrated and

soluble forms of plant-food is to be expected. We shall now consider, briefly, how the various mechanical operations of the farm affect the physical condition of the soil, bringing about good tilth, and at the same time increasing its store of available plant-food; for it is to be remembered that drainage, ploughing, harrowing, cultivating, exert a powerful influence in assisting those chemical changes in a soil that result in the liberation of plant-food from inert matter of the soil, as well as in lightening the soil and making it a comfortable seed-bed.

*Drainage.*—We are all doubtless aware that plants take their food from two sources—the atmosphere and the soil; the carbonic acid gas of the air through their leaves, the soluble soil-food and water through their roots. But it must not be forgotten that roots, as well as foliage, require air. They suffocate and die in a soil filled with stagnant water from the fact that such a soil is destitute of air. Land, upon which the water remains in puddle after a rain—cannot produce good crops. The plants will be yellow and undersized, showing that conditions are abnormal and detrimental to vigorous, robust growth. The yield of grain or roots, as the case may be, will be very small, sometimes nil. Now, underdrainage is for the purpose of drawing the surplus water through the soil, allowing the interstices or spaces between the soil-particles to be occupied by air which before-time was excluded.

Again, soils which stand in need of drainage are always cold, for the water they contain utilizes the heat of the sun's rays in its evaporation, instead of allowing it to warm the soil. Further, such soils are apt to be sour and acid, and this is a condition injurious to all cultivated plants.

There are some soils—light, loamy soils, for instance, on a gravelly sub-soil—that do not need under-drainage. But heavy clay soils and soils resting on a hard-pan will invariably be benefited by this operation. The appearance of the crop will indicate to the observant farmer when drainage is necessary.

Though it may sound paradoxical, it is nevertheless true that crops on well drained soils can withstand drought better than on undrained soils, for with the former the root system will be deep, whereas with the latter it will be shallow.

Apart from the above considerations, drainage will ameliorate or improve a soil's mechanical texture to a wonderful extent, and this is particularly the case with heavy loams. It destroys the plasticity of clays, making them mellow and friable and easy to work; it enables the farmer readily to "fine" the soil so that germinating seeds may find a comfortable, warm and moist bed, and by lowering the water-table (the level at which the water stands in the soil) permits the roots of the growing crop to find ample and easy room in which to forage for their food.