

## FARM AND FIELD.

## DRAINAGE.

At a late meeting of the Western Michigan Farmers' Club, drainage was the subject of an essay by Hon. S. L. Fuller. The *Prairie Farmer* pertinently asks:—

"Who has ever seen the whole matter better presented than in the following formula, that Mr. Fuller placed upon the black-board for the consideration of members, and as a sort of text for his will-digested remarks:—

Late Ploughing, Poached Land, Crops drowned out, Difficult cultivating, Excess of weeds, Too wet to run reapers, Frosty.	} Too wet.
Hard ploughing, Baked land, Dried up crops.	

Hard ploughing, Baked land, Dried up crops.	} Too dry.
Clover thrown out, Wheat thrown out.	

Fevers—Malaria.  
Insects—Slow growth.  
Poor crops—Wasted manure.  
Waste land—Dead furrows.  
Wasted land—Water channels.

Effect of the above—Poverty.  
Cure for the above—Drainage.

The speaker proceeded to elaborate the ideas here embodied. He said:

"To raise crops we must have sunlight, heat, air, moisture, and a soil containing elements conducive to the growth of plants. The seasons are not propitious, and under-draining only will remedy these evils. Too wet—under-drained land is never too wet for the growth of crops. Thorough under-draining will dry land to the depth of the drains in ordinary soils. Soil once ploughed after draining will remain loose and friable, and will not again become solid. If subsoiling is done it need never be repeated.

"Any culture to the depth of the drain, once made, will remain comparatively loose and friable. Why? Because before the loosened ground can become repacked, the water will commence filtering through it, and it will not pack while the filtering process goes on, and it will filter every rain. The effect of under-draining land is to make the surface of clay land like the surface of sandy land. The entire waterfall is absorbed until the earth is filled, then the surplus water finds the drains and flows away. The effect upon land is to make the soil act like a sponge; it will hold water and give it off. It will only hold so much. If you put a sponge in an earthen vessel it is like soil in a clay basin. It becomes filled, and the surplus goes to fill the basin.

"The season is too dry—Under-draining blows hot and blows cold. The water on a newly-drained piece of land is comparatively tardy in finding its way into the drains at first, but after each rainfall, as time goes on, the water flows more freely, because with new rains new channels are formed, and a channel once formed will not close, and the ultimate result of ditching is to deepen the soil fitted for plant food.

"Evaporation for the surface means 'cold.' To grow crops we don't want cold. When we say the land is cold and sour, we simply mean it is wet, because to add an alkali to the soil would not make it produce, but to drain it would. Usually the wet portions of

a farm are the lower portions, and usually the lower portions are the richest, so that, as a rule, under-draining improves the richest portion of the land.

"Why not plough earlier in the spring? The early-sown spring crop is the best. It is too wet. Under-draining will cure that. Ploughing can often be done weeks earlier when the land is under-drained.

"Land is poached by cattle roaming over the field because the land is wet. Confine the treading of cattle to a small compass, and brick could be made. The clay and the water are mixed, and it becomes sun-dried brick from surface evaporation. Under-draining will prevent this.

"The manure is uneven in its effects, simply because the land, more or less of the time, is too wet. From manure on wet land only partial benefit is derived.

"Soil cracks because of the wet, first, and then the drouth of the land. It ploughs up in clods, because it was too wet, and then dry, or moved when too wet. It may be said the land takes all the rain that falls, and it must do that anyway, that is true; but the under-drained land permits it to pass through, and does not compel the evaporation from the surface. To account for what may seem contradictory in these assertions, let us see the further effect of under-draining. I said we must have light, heat, moisture, and good soil; where too much water is, little sunlight reaches the soil; where too much water is, no heat can penetrate the soil; where there is a superabundance of water we have 'wet,' which is a step beyond moisture. When wet land is drained by taking away the water, you let in the sunlight, you let in the heat—you leave, then, moisture, the requisites to growth. Every channel through which the water has passed out, every interstice left open in the earth, is filled with air. The drains that carry the water down brings up air that permeates the entire drained land."

## ONTARIO SILOISTS.

Until the receipt of the last number of the *Country Gentleman*, we were under the impression that there was but one siloist in this Province, and that, consequently, he was, in this respect, a soloist. But it would seem that there is at least a duet of them. Beside Squire Tillson, of Tillsouburg, who gave a very interesting account of his experiments at the Woodstock dairy meeting, there is a correspondent of the above-named paper—"T. B. S.," of Vanneck, Ont.—who has been experimenting with ensilage. He built a silo in May last, into which he first put twenty tons of millet, and afterwards about sixty-six tons of corn fodder. The mass was pressed down with six iron screws. The silo was opened November 1st. Both corn and millet were in good condition, except next to the stone wall, which, being uneven, admitted the air, causing a little mould at the edge. There was also mould at the bottom for a thickness of from two to four inches. "T. B. S." appears to be satisfied with his experiment, but gives no figures as to cost and feeding value. He thinks he can improve upon the construction of his silo, and intends to ensilage clover next year, which he finds it hard

to convert into good, sweet hay. Indeed, he says, "no amount of care can insure us good clover hay. We are at the mercy of the weather." This is rather strong language. It is difficult, but not impossible, to cure clover hay. They do it in England, with a climate more showery than ours. In this country we have not only rain to guard against, but a hot sun, which is nearly as detrimental to clover as wet. These difficulties can be overcome by means of the tedder and hay-caps, and where clover is largely raised (as it should be on every farm), it will pay to provide them. The sweetest clover hay we ever saw was grown by a Connecticut farmer, with the helps named. It was green, fragrant, and toothsome. We guarantee that no sensible cow would prefer the best ensilage to such clover hay. We incline to the opinion that the ensilaging process will be found chiefly valuable in the preservation of green fodder corn.

## IRRIGATION.

Many farmers are favourably situated for trying the effects of irrigation. The testimony of one who has done so is given in the *New England Farmer*, as follows:—

"On the farm is a small pond, lying within a stone's throw of the farm buildings, which is fed by a small but durable brook, starting near the centre village of the town, with its 8,000 inhabitants, and in times of freshets or heavy summer showers, acting as a sewer for the entire village. So rich in fertility is the water of the stream, that a large mowing field of some thirty acres, which receives it through numerous ditches, has produced, for several years past, an annual yield of about three tons of hay per acre, at two cuttings, with no other fertilizer whatever being applied; and the soil appears to be improving rather than declining. The water is kept running upon some portion of the meadow nearly or quite the whole season, though being frequently changed in its course by the building or removal of small dams. So valuable has the water-flow proved during the past half-dozen years, that Mr. Hillman is contemplating its use upon nearly the whole of his 100-acre farm, having found by surveys that he can do so at a comparatively small cost. So much sediment is carried in the water and deposited on the surface of the mowing that the grass plants get a slight "hilling" up each year, which tends greatly to increase their vigour and prevent destruction after the mowing machine has laid the stubble bare and exposed to the burning rays of a July sun. Several barren knolls have been converted into the best of mowing land, by no other means than the conveyance of water over them. In the lower part of the meadow it has been found necessary to lay a number of blind drains, to take away the surplus flow in times of over-abundance."

## SORGHUM CANE AND SUGAR.

In accordance with request of the Legislature of New Jersey, some experiments on the production of sorghum cane and sugar were carried on last year at the Experiment Station of that State. Out of fifteen varieties tested, only five matured before frost: these were Omeeseana Sorghum, Gooseneck, Early Am-