

ED. FARMER'S ADVOCATE. SIR—I notice in the August number of *ADVOCATE*, Constitution, By-laws &c., of the "Middlesex Agricultural Council," lately formed. We are endeavoring to form a "Farmer's Club" in this vicinity, but hardly know how to proceed in getting it up. I infer from clause No. 2, Sec. 2, that the Council would aid in the formation of Farmers Clubs. I am therefore instructed by resolution of our last meeting to write to see if we could obtain a Constitution and By-laws suitable for our purpose, and some general information respecting the working up of a "Farmers' Club." Our object seems to be as follows: The combination and co-operation of farmers in the matters of resisting and suppressing evils and abuses imposed on the farming community; the shipping of grain and other produce direct and probably getting supplies direct; also the cultivation of social intercourse and improvement in agriculture, raising stock, etc. As the address of any of the officers of said Council is not given, and as their meetings are held in the *ADVOCATE* Office, I take the liberty to write you on the subject, requesting that you or the Council be pleased to send us something in the shape of a Constitution, By-laws, &c., that we could use to begin with, which no doubt you will be glad to do, and for which I assure you we shall be very thankful. The thought suggests itself to me that something concise could be inserted in the *ADVOCATE* which would also be utilized by other communities.

Yours respectfully,  
Goldstone, Ont. W. S. GRACE.

W. A. Macdonald.—As I had the honor of framing the Constitution and By-laws, permit me to state that I adapted them to the special requirements of this Council and not for farmers' clubs generally, but I think that any club could easily change them so as to make them suitable to its requirements. I am in favor of devoting part of our special fund to printing Constitutions and By-laws specially suited to farmers' clubs.

W. Weld.—Allow me to draw your attention to the suggestion made by the Secretary at the time our Constitution and By-laws were adopted. He then suggested the Council should have corresponding honorary members in different parts of the Dominion. Such members might be composed of the secretaries of all the farmers' clubs affiliated with this Council. I believe the greater part of the special fund could be most advantageously used in sending a member of this Council to aid in establishing farmers' clubs in obedience to such communications as we have received from Mr. Grace. Such members should also be prepared to deliver a lecture on any subject decided upon by the club. I do not think it advisable to publish rules and regulations in the *ADVOCATE*, for no two clubs should be founded on exactly the same basis; each club should be guided by local circumstances and conditions.

The further discussion of this question was postponed for deeper deliberation.

The President—I am pleased to see so many members present at our annual meeting, and the increased enthusiasm manifested. We ought to be thankful for the magnificent opportunity we have for doing good to the free and independent farmers of this Dominion, for we can speak to them through such a powerful organ as the *ADVOCATE* and I think we can also aid that journal very materially.

W. Weld.—As editor of the *ADVOCATE*, I want to protest against the remarks of the President. The *ADVOCATE* is not the organ of this Council or any other corporation; but I have promised to sustain you with my influence and my funds, so long as you keep free and independent, and I shall stick to my word. I don't expect that your support will be of any use to me, for I have already the best writers in the different departments of my journal. Before you commence the election of officers, I wish to state that I want to retire from the Vice Presidency as I feel worn out in the cause of agriculture, and don't desire to undertake greater responsibilities. You have other and younger members, highly capable of filling all the offices, but I hope you will retain my name on your roll as a private member of the Council.

### The Farm.

#### Effects of Deep Sowing of Winter Wheat in Underdrained Soils.

A correspondent sends us specimens of his winter wheat, an illustration of which we give herewith, and asks us whether Fig. 1 or Fig. 2 will stand the winter best. This is a very important question, as it embraces many tillage operations, and we gladly give it special prominence. The illustrations are from photographs of the specimens we received, but are one-third smaller in size. A portion of the blades have been cut off in order to save space, but the roots have not been interfered with.

The slender filament in Fig. 1, which lies between the root and the base of the blades, is one and a half inches long in the specimen, or one inch in the illustration, and shows that the seed was sown deep, but how deep we cannot say. The seed which produced Fig. 2 was sown shallow.

It should here be understood that young



FIG. 1.

FIG. 2.

plants derive their food from the seed until such store is exhausted, or at least until the leaves are sufficiently near the surface to receive the light, for the carbonic acid of the atmosphere cannot enter the plant through the leaves in darkness. Fig. 1 had therefore a struggling existence before its leaves were able to reach the light, and the stiffer and wetter the soil the greater the struggle. These facts point out that the depth is largely dependent on the drainage, composition, and physical character of the soil.

In Fig. 1 the roots below the filament are scarcely three inches long, while those in Fig. 2 are five inches, and the roots of the latter are stronger and more numerous, and are therefore in a better condition to obtain nourishment, especially in a drained soil. The roots in Fig. 2 also spread out more widely, which is a fact of very great significance; for the capacity which roots have for obtaining food depends upon the number of particles of soil which come into contact with them; this number again depends upon the fineness of the particles, and the fineness of the particles is governed by the drainage and tillage.

Of primary importance are also the effects of frost. When undrained, a frozen soil expands bodily, and the injury to the crop can mainly

be traced to uneven expansion, causing the roots to break, especially between the frozen and unfrozen soil, should they penetrate to that depth. Now, if the frost level cuts Fig. 1 at any part of the filament, the plant will die, whereas, in Fig. 2, the roots, if cut off at any point, will grow again under favorable conditions, although the vitality of the plant may be greatly weakened. We should therefore prefer a field of wheat with roots like Fig. 2. Numerous experiments have also proved that the philosophy of the thing is correct, for a depth of one to two inches (according to the nature of the soil) has produced the best results.

These facts give rise to another important point, viz., Which is the better, hand or drill sowing? Drill sowing can only be defended on the ground that a proper and uniform depth can always be secured; and hand sowing can be condemned mainly on the ground that the depth is too irregular. The seeds left on the surface must suffer for having too much light and too little moisture, all seeds germinating better in the shade, if not in total darkness, and then there is also the risk of their being devoured by birds. Again, if they are sown too deep, the results will be as above described. The leading objection to drill sowing is that, when the roots are matted too closely together, they cannot be kept sufficiently in contact with the greatest possible number of particles of soil; hence they cannot feed to the best advantage.

There is evidently a fortune in store for the ambitious farmer's boy who will invent a drill which will sow a uniform depth, making the drills say two inches apart and dropping the seeds separately instead of placing so many in contact with each other.

#### Farm Drainage.

No. VI.

*Laying out the Main Drain.*—Having taken the level, and ascertained the lowest portion of the field, the first consideration is to get a good outlet, but before this is determined, it may sometimes be necessary to have an idea of the depth of the main as well as of the laterals, for the outlet may be sufficiently free for a shallow drain, whereas the obstructions offered to a deep drain may be a source of annoyance. This leads us to the following consideration:

If the upper layer of the soil to be drained is somewhat stiff, with a more pervious substratum say 4 feet below, it is better to dig shallow drains, placing them closer together, than to cut through the upper stratum, with the drains farther apart. Should the reverse be the case, however, then it is better to have deeper drains at wider intervals. (It should here be remarked that if the upper stratum is more or less retentive, with a porous subsoil say 4 to 8 feet below, then the land should be drained by digging holes into the pervious subsoil, and filling them up with a more pervious soil. The number of these holes will depend upon the retentive character of the upper bed, and the porosity of the pervious stratum. This course often becomes very practicable where springs abound. These determinations can only be made by digging test holes in different parts of the field.)

In these views of the situation the depth of the laterals should be ascertained before that of the main; but there are other considerations