

But many of our readers have not yet learned from the best of all teachers—experience; and to all a word in season, an additional testimony to the policy of doing everything just at the most fitting time, will not be amiss. The impression is not wholly done away with that it cannot be wrong to allow grain crops to attain full maturity; the practice has been very general, and old habits may be pleaded in its favor, though good farmers, even in olden times, knew and practised better.

Harvesting is often deferred too long. Professor Johnson says that about "a fortnight before full ripening is the proper time" of cutting the grain crop, "as the skin is then thinner, the grain fuller, the bushel heavier, and the yield of flour greater." As a general rule, this may be correct, if we can limit the ripening and cutting by a certain number of days, but we must be guided, partly at least, by the temperature. A fortnight of a hot July makes a greater difference than if mild and cloudy. Much must depend on our own close observation. We have always cut our wheat and oats when the heads were bowed down, and the joints of the straw still retained somewhat of the sap and greenish hue. When the joints have become dry and fibrous, the grain and straw have been injured by standing too long.

By harvesting wheat and oats before fully ripe we always commanded higher prices for our grain; the sample was brighter, heavier and better saved; it was worth more to the miller, as it yielded more flour or meal. The Secretary of an English Agricultural Society having made most careful and elaborate experiments, came to the conclusion that wheat early cut gives a better quality of flour, containing more gluten and making a greater quantity of bread under equal circumstances, and the bread more palatable and nutritious. In the maturing, as the sugar in the green plant becomes changed into the starch of the wheat, so if permitted to remain till fully ripe, another change will take place, the starch being gradually converted into woody fibre; for sugar, starch and fibre are composed of the same constituent elements. It has also been ascertained that wheat fully ripened contains much more pollard than wheat which is cut earlier.

In our last month's issue we referred to the advantage of mowing grass before the seed is fully ripe. The same remarks are applicable to straw. The earlier it is cut when fully grown the more tons there are to the acre, and the more nourishing it is. It begins to diminish in weight when within a fortnight of being fully ripe, and every day afterwards that it remains uncut it becomes lighter and less valuable as fodder. When cut early and well saved, it is little inferior for feeding to hay. Store cattle will thrive well if properly cared for, and during the longest and hardest winter, on hay, with a small allowance of turnips or mangolds given regularly.

#### Flowers on Grass.

The frequent enquiries we have as to the best method of laying down lawns with grass seed indicate the increasing desire throughout the country of making the ground around the house more pleasing to the eye and home more attractive to all its inmates. A writer in an English agricultural paper well says that the chief charm of English gardens, both great and small, consists in the greenness and smoothness of their grass plot; and as a means of still increasing their beauty and adding thereto another and totally distinct charm, he suggests the distribution of well posted masses of flowers of graceful color. This idea is not an entirely new one. We have seen and practiced it in the Old Country, and here this means of lending a new charm to grounds beautiful in themselves, is not unknown. Geraniums of the many different

varieties are almost exclusively planted in masses in the grass ground, when transplanted from their winter conservatory. Much more, however, might be done in this direction. Other flowers than the geranium might be more liberally used for this purpose, reserving the grass as the principal feature in the landscape. No flower contrasts more strikingly with grass than fuchsia, and at the same time they harmonize with it completely. The failure in growing them sometimes experienced is owing to the want of sufficient labor in the preparation of the ground. A little plot is dug in the grass, not more perhaps than eight or ten inches deep. This is not enough. The flower bed in grass should be thoroughly tilled, subsoiled and enriched with compost. The plants must have food, and to supply it the plot should not be less than three feet across and tilled at least two feet deep. Such preparations are needed also for geraniums, if we desire luxuriant foliage and blooming. This tillage is also a means of affording the requisite moisture to fuchsias, their roots requiring abundance of moisture. In Britain the plants are cut down to the ground in the early winter, and some evergreen branches and hay thrown over them, to protect them from the frost. In the south of England and Ireland fuchsias, as well as many half-hardy flowers, survive the winter without any protection. But they are not hardy enough for our winter. This, however, forms no greater obstacle to our planting them in grass ground than it does to the transplanting of geraniums in the open air. We are so well accustomed to preserving tender plants in the house in our severest winters, that we easily overcome any seeming difficulty with fuchsias.

In laying out plots in the grass, a good opportunity will be offered for the display of tasteful ingenuity in their various fanciful forms. We know more than one ground with plots for flowers of very handsome designs, but they have all the great fault of a want of deep tillage and sufficient area.

#### Watering Plants in Summer.

Moisture and heat are both of prime necessity for the growth of plants—warmth in the soil and moisture for the leaves and roots, especially for the latter. Plants can only feed on the food that is in the soil, in a soluble state, and for this moisture cannot be dispensed with. Happily the earth is a great reservoir of moisture, and especially available for this purpose when deeply and thoroughly cultivated. The roots of all plants imbibe their liquid food from a depth and extent of area that a superficial observer can have no idea of. They have a power of suction that draws moisture from a distance greater than their own extent. Hence the continued growth of plants in land well tilled as deep as the quality of the soil will permit; when in badly tilled and shallow ground vegetation has wholly ceased.

It may be necessary under occasional circumstances to water plants during excessive drought of summer. If it be necessary to water, do so with no stinted measure; let the watering be so copious that it shall settle down to the bottom of the roots of the plant. Anything less is worse than useless. It is not wise to water plants if it can be avoided. When they are watered they throw out near the surface little rootlets to drink the moisture that has gone down no further; and if the watering be not frequently repeated, they perish for want of moisture, and the plants consequently suffer injury. When not watered, these roots go down into the soil, where they may find a little moisture still awaiting them in deep, well cultivated soil.

The surface sometimes becomes compact and hard from the watering. If it be so, loosen it lightly with the hoe; but to prevent it, we fre-

quently draw the earth with the hoe from the neck of the place, and replace it immediately after watering. This prevents the wetted earth from being baked and hardened by the heat. Another method of preventing the hardening of the surface in watering is to pour the water on a light mulch, previously placed around the stem. But one of the benefits from mulching is that it serves to keep the soil moist.

#### Permanent Improvement of Land.

A temporary improvement of land is easily effected and brings a quicker return for the expenses incurred than improvements that are more lasting, and eventually much more profitable. For instance, a field that is liable to have its crops injured by standing water may have the water drawn off, sufficiently for the season, by open surface drains, at little expense, the work being for the greater part done by the plow. The improvement is only temporary, but it is cheaply performed, and the cost is covered by the first crop. Were the same field thoroughly drained, the expense would be heavy, and it might perhaps take years to pay for the improvement the soil has undergone. And so it is with many other improvements as well as thorough draining.

However, there is no improvement so profitable eventually as thorough draining, when necessary, notwithstanding the heavy expense, and there is none on which any other improvement so much depends. Fertilizers can effect little good on land that needs draining. Lime applied to such a soil is wasted—nay, it is worse than thrown away. It serves to bind the soil when wet, whereas, were it dry, it would serve to make it more friable. To attempt subsoiling wet soil would be labor in vain.

Our Canadian farmers have inducements to undertake permanent improvements that tenant farmers have not. The farms they occupy and cultivate are their own in perpetuity. If they expend in judicious improvement a sum equal to the value of the farm at the time, they are increasing two-fold the value of their estate.

Land contains within itself the means of great and lasting improvement, and additional means, if needed, can be readily obtained. Science has long proved, and experiments have confirmed the fact, that plants are fed and plant life nourished by certain elements which the roots find in the soil. These elements may not be available as plant food in their present state. They may be in the subsoil beyond the reach of the roots, or they may be locked up in the tillable soil, and requiring the chemical action of lime, superphosphate or some other agent to bring them into such condition as to supply the plants with food. Fertilizers are used to supply any deficiencies of particular elements of plant-food, but the most important matters are in the soil itself, in some land in a greater abundance than in others. If confined in the subsoil, deep plowing or subsoiling will be found an effectual means of rendering them available. Subsoiling does not imply the bringing the substratum to the surface, but in making it friable and yielding up the plant food it contains, and still remaining in its place, a subsoil. Or the plant food may be in the surface soil. In such instances, beside being continually acted on by moisture and heat, it is necessary to add extraneous matters to act upon the inert elements. For this purpose none is so generally useful as lime, not as a fertilizer, but to call into action elements embodied in the soil.

We have referred to drainage and subsoiling, both justly considered permanent improvements of the land. To lime or any substance used as a fertilizer the term permanent is not so applied. Fertilizers produce the desired effect. The soil is temporarily enriched, the produce is increased, and the manure that has been applied is taken away