

of seed should be used. Seed chosen promiscuously from flax grown for the grain only would not answer for the production of fibre. It would want choice seed carefully selected, and from a crop that had been grown for the fibre. For live stock uses it is becoming common to grow a little flax along with certain kinds of grain that are to be fed upon the farm. These include oats, barley, and oats and peas grown together. But when thus grown a very small proportion, indeed, of the flax is necessary. The idea of growing flax thus is to secure a more perfectly balanced ration at a minimum cost, and with but little trouble.

The Seed Bed for Winter Wheat.

The success or failure in growing a crop of winter wheat may depend in some instances on the character of the seed bed when the seed is deposited in the soil. The importance, therefore, of giving the closest attention to this question will be apparent.

Ordinarily, the conditions of the seed bed most favorable to growth can be more easily obtained when the land has been plowed some time before the sowing of the crop. Opportunity is thus furnished to cultivate and harrow with sufficient frequency to secure a fine pulverization of the soil, and enough of moisture to insure germination when the seed is sown.

Take, for instance, a summer-fallow. In any case it will be plowed at least two months before the sowing of the seed, and in some instances fully four months before that date. Now, if it be worked upon the surface, a fine pulverization is secured long before the arrival of seedtime. With the increasing fineness of the soil on the surface comes increasing moisture, for the finer the surface soil is, and the more frequently it is stirred, the more surely will the ground moisture be retained. It follows, therefore, that where sufficient cultivation has been given to the soil on the surface, even in a dry season, there should be sufficient moisture in it to start the grain at seedtime. But it may be well to state that in a wet season there is a danger in handling stiff clay soils thus. If, when the surface is finely pulverized, a heavy rain should fall, there is liability not only of too much impaction of the soil, but also of an incrustation of the surface that would be peculiarly hurtful to the growing crop, if the ground became thus impacted and incrustated soon after the sowing of the seed.

But over-pulverization is the exception rather than the rule. For every instance where it is found a score of instances may be found in which the pulverization is insufficient. Plow land for winter wheat but a short time before sowing the seed. If it is dry and cloddy, and if at the same time the season is dry, no amount of labor spent in pulverization will put that land in as good a condition for receiving the seed as though it had been plowed much earlier and prepared as described above. Even though it should be finely pulverized, it is lacking in moisture, and, if lacking in moisture, the seed cannot fare well.

When seed is sown in finely pulverized soil, and moist withal, it germinates at once. The moisture causes germination, and this process is facilitated by the close adherence of the fine particles to the seed; that is to say, the air is not allowed to penetrate the soil too freely. The spaces between the particles of the soil do not admit enough of air to cause the soil to dry out, and yet there is sufficient circulation of air between the particles in the soil to enhance

germination. When, too, the first tender rootlets push out in the soil, they can easily take up enough food when the pulverization is fine. But when the opposite conditions prevail, the land near the surface dries out too quickly, by reason of the evaporation which continually goes on, and the young rootlets of the plants are much restricted in the area of the feeding ground in which they gather their food.

If, therefore, winter wheat is to be sown on the bare fallow, the latter should not be plowed for some time previous to the sowing of the seed, but it should rather be stirred only on the surface. And if wheat follows peas with the land in a clean condition, surface pulverization here also will be preferable to plowing. If wheat follows clover, the aim should be to plow the land as soon as possible after the first cutting of the clover.

So long as winter wheat is grown, and some will always be grown in Western Ontario, the aim should be to grow it in the best possible form, and under the best possible conditions. Unless the crop has made a good growth in the fall, it is not likely to succeed well, as the risk from winter weather is considerable. Every effort, therefore, should be made to give the wheat a good start in the fall. It may happen now and then that the autumn growth will be excessive, but this will not occur very frequently—indeed, it seldom occurs. And it is an important point to sow winter wheat with the grain drill. This enables it to stand the winters more perfectly, as it does not heave so easily, nor is it so easily injured by intensely cold weather.

Winter Rye as a Pasture.

The great value of winter rye as a pasture is all too little known. In Ontario and other parts of the Dominion grasses grow so luxuriantly that the want of what may be termed artificial pastures is but little felt. But in sandy sections there is much danger in dry seasons that there will be failure to get a stand of grass. Under these conditions rye may be used as a substitute with much advantage the following season. And in other parts which are liable to be troubled with dry weather, as in regions far west, and where, at the same time, the winters are too cold to grow clover, rye may be used as a substitute for a shortage in the grass crop. Again, a pasture for swine may be wanted not far from the hog house, which for the time being cannot be obtained in any other way. Grass requires one season to become established. Ordinarily, when it is pastured during that first season, it is much injured for future use, whereas rye can be pastured after it has been but a few weeks sown.

Where the supply of pasture may be short from any cause, it may be supplemented by growing rye. The two may be made to alternate, that is, the rye and the grass may be pastured alternately, much to the advantage of both. In this way stock may be pastured which, under other conditions, would have to be soiled.

Rye is probably not quite so highly relished as blue grass, but all kinds of live stock will eat it readily. Milch cows will do well upon a rye pasture. Sheep also do very well upon it, but they require to be fed some other food at the same time if they are to be fattened on a rye pasture.

To get the best results from a rye pasture, it should be sown in August or early in September. It can then be pastured in the autumn, more especially when sown in August, unless

the season is exceedingly dry. But it should be allowed to get well rooted before winter. It will then stand the winter better than if it has only a delicate and feeble growth. On the other hand, it should not, under any circumstances, be allowed to joint in the autumn, otherwise it will not produce a good crop of pasture. In fact, it will be practically ruined for pasture uses. The same thing must be borne in mind in the spring. It should not be allowed to get far enough above the ground to form the ear, or its further use as a pasture will not avail. By keeping it well eaten down, it may be made to produce pasture for a lengthened period.

If pasture is wanted from a rye crop through the whole of the season, it may be obtained by sowing winter rye in the spring. When sown at that season it will readily spring up. It will be ready for pasturing a short time after it has appeared above the ground, and one of the great advantages of growing it thus is found in its inability to head out that season. When the weather happens to be dry in the summer, the rye pasture will continue to grow after the grass pastures have become dormant.

It may be asked, Why would not spring or summer rye answer the purpose better? For the reason that it would soon head out if not eaten close, and, after the normal season of maturing had arrived, it would grow more slowly. When winter rye is sown in the spring it is peculiarly helpful as a pasture for swine, in the absence of common red clover.

Another advantage of rye as a pasture arises from the fact that it may be made to provide a large amount of pasture the previous autumn, and it may then be turned under next year in time to grow another crop of something else. When thus managed, the land is made to produce abundantly within a short period of time, and the process is eminently helpful in destroying weeds, as the pasturing prevents them from making any headway, and the turning under, some time in the summer, very greatly tends to check their growth or to prevent their increase.

When sheep are pastured on rye, and grain or oil cake, or both, are fed at the same time, the results are very helpful to the land. It becomes improved in fertility. The same is true of the pasturing of the rye with swine. The droppings enrich the land, and in both instances the manuring is cheaply and advantageously done, for the manure is evenly distributed, and, virtually, without any outlay.

Barn Building and Concrete Walls.

Permanently constructed and suitably arranged barn buildings are as necessary to the business of the farm as are properly equipped workshops to the manufacturer. Beef cattle cannot be properly fed nor dairy cattle kept to advantage in cold, dark buildings, neither can swine be fed during the cold weather with the hope of a balance in favor of feeding when the essentials of comfort and warmth are lacking, while the work required in attending stock is changed from a most disagreeable task to a satisfactory pleasure where comfortable quarters have supplanted the place of the old-time frame structures, which, as ordinarily built, are cold, foul, and as cheerless as possible.

It is not only the expense that ordinary masonry entails with its attendant breaking and dressing before each stone is ready to place in the wall, but the supply of the material is of itself a serious undertaking, even if this is to be found on the farm, and only those

who have spent weeks in hauling have any idea of the drudgery handling large field stone entails. But there are large sections of the most fertile part of the country where stone can only be procured by hauling long distances, while many a carload is required, if the railway company has to be the medium which is to supply the material, the cost for carriage being a serious item to add to the expense account.

It is at this point that concrete cement comes to the rescue, and supplies a want that in many cases has prohibited the building of anything but wooden walls.

In comparing concrete cement with ordinary masonry, it is necessary to be reminded that the walls built of the latter are usually from twenty to twenty-four inches in thickness in order to utilize field stone, and give space for the bond that masonry requires to insure sufficient strength; and when it is understood that a properly built concrete cement wall one foot in thickness is stronger than the ordinary stone work of the mason, the saving in the supply of material can be imagined.

Any one who has taken down a stone wall as usually built by a mason knows how easily a properly applied crowbar will work a hole through the best built wall, but a trial at a concrete cement wall will convince the most incredulous that in this case they have undertaken a much bigger contract.

In going our rounds among the stockmen we have seen many admirably constructed walls built with concrete cement, while we are so frequently asked questions concerning the reliability of this material for walls as well as for floors that recently, while in the vicinity of Queenston, we availed ourselves of the opportunity of inspecting the works of Messrs. Isaac Usher & Sons, a firm which is supplying farmers with most of the cement used for building purposes. After viewing their quarries, kilns, and mills, we were satisfied with the care that is exercised in the manufacture of their brand, and fully understand why Queenston cement has given such satisfactory results in the walls in which it has been used. Queenston cement is made from the natural rock, which is burnt and ground in its preparation, and no lime or foreign matter is allowed in its manufacture, consequently it is perfectly reliable, and, when mixed as directed, with the proper proportions of sand and gravel, forms a wall stronger and harder than the original rock itself before it is quarried.

Railway bridges and caissons subject to the more rigid government inspection have been built of Canadian natural rock cement, and time has verified the judgment that passed it, for it has been found in every case most durable, gaining strength the longer it stands. However, cheapness is one of the strong points in favor of cement, both for walls and floors. In the latter the material will cost something like two and a half cents per square foot, or less than the plank that would be required to cover the same amount of floor space.

In building a wall a barrel of cement will build a section one foot in width, one foot in depth, and twenty-four feet long, so that it can be easily estimated how cheap these walls may be built, while, as before stated, there is a wonderful difference in the quantity of material that has to be provided. This, together with the fact that coarse gravel will do when no stone can be had, is an incalculable benefit to those who wish to build comfortable buildings.