

the rails are all fitted at the ends and perfectly level on the top and even with the posts, and the stakes were sawn. The posts are sunk four feet in the earth. You might look along the top of a line of this fence the full extent of the length or breadth of the farm, without detecting the slightest variation in its construction.

The buildings were suitable in a sense to the wants of the farm: the house of brick, pre-eminently so, and there was much of convenience in the construction of the barns, but we cannot countenance in this economic age the sustaining of so large an amount of roofing without receiving more accommodation for the keeping of stock, where the cold of winter is never felt. Mr. Rennie has fair accommodation, however, in this line, and cellar-room enough for storing roots, but in our estimate the outbuildings as a whole, though some of them were new and well arranged, are not quite in keeping with the long advance in other respects that Mr. Rennie has made over so many of the farmers of Canada. We may here note, and the conviction grows upon us, that the buildings best adapted to the keeping of stock in Ontario are those which have the ground compartment walled in with stone, where abundant provision has been made for light, and where the feed in the main comes from above rather than from the same plane.

The water supply is from wells, sufficiently numerous, and there was the usual full complement of farm machinery without an excess of the same, which is a most prodigal form of waste.

The singular neatness about every detail of this farm was one of its unique features. Even in the most trifling details it was everywhere manifest. In the barn was some oat straw left over from the winter. It was all tied up in bundles to be sold at an abundantly paying rate in Toronto. A pile of unused rails was lying along the edge of the bush, and were piled with one end so square that the rail looked as though part of one huge log. Numbers of farmers would look upon this exactness, which is at the root of all true beauty on a farm, as an unwarranted waste of time, but a glance at Mr. Rennie's balance sheet would soon convince the most skeptical that no time is wasted at Kelvin Grove. The truth is that there is a slovenly and a tidy way of doing everything, and the man who accustoms himself to the latter method from an early day will soon be able to do as much as an other who indulges in the former. If the young men coming on the stage would govern themselves accordingly, our province would become a paradise of rural beauty in our generation.

There are so many strong points on this farm that we would fain dwell upon them, but we have already given the main features. In four particulars only was Kelvin Grove marked below the standard of perfection. A slight deduction was made on account of the dearth of tree planting, in which Mr. Rennie does not believe, on the borders of grain-fields, and in the neighborhood of drains. In the first instance shade is detrimental, and in the second the roots choke the drains. It was not marked quite full in the management of manure, and a considerable deduction was made in the lines of live stock and outbuildings. Had it not been for this—it would have reached the standard of perfection, two hundred full marks.

A word to our young men before we leave the description of this sweepstakes farm. Kelvin Grove has not attained its present proud distinction by accident or as the result of a happy combination of circumstances. In several respects others of the competing farms had by nature a most decided advantage, as in natural beauty, water supply and in other ways. It has been made what it is by the unflinching determination of its owner. The sweepstakes prize for the best farm in Ontario is not the first prize he has won, but the last of a long line, each one of which has been the direct result of personal effort. The mastery in ploughing, shooting, cross-cut sawing, have all been assigned to Mr. Simpson Rennie, the owner of Kelvin Grove, and also in a long line of physical pursuits in bygone years. It has apparently been his aim to seek pre-eminence in whatever he has undertaken, and he has sought it with a determination that would brook no denial.

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Couch or Quack Grass.

BY T. RAYNOR, PRINCE EDWARD CO., ONT.

This excellent paper is from the pen of a student of the Ontario Agricultural College. We shall be very pleased to hear frequently from this source.—ED.

TRITICUM REPENS—ORDER GRAMINEÆ.

Couch grass in appearance resembles to some extent the perennial rye grass; in the former the spikelets are arranged crosswise, in the latter edgewise, but it is not so highly valued as a grass. On the contrary, it is looked upon as a most troublesome weed. It is an imported grass, coming from Europe, where in some places it constitutes the meadowland of large districts. In Great Britain it is well known as a very bad weed. In different parts of the country it is known by different names, such as couch, quack, quack, creeping wheat grass, dog's grass, and quacks. It has a perennial root, consisting of a white jointed creeping rhizome; a smooth culm growing about 2 feet high, with leaves from 4, 8 to 12 inches long, and a spike varying from 2 to 3 inches in length. As a pasture grass it does not thrive very well with other grasses, but alone it will spread over large tracks of land in a wonderfully short time, and is very hardy.

There is also a stronger tendency to mildew in this grass than in most others. Although so aggressive in its nature, as an agricultural grass its quality is excellent, comparing well with timothy. Of nutritive qualities it contains 9.94 per cent. albuminoids or flesh formers, while timothy contains only 8.3 per cent. The proportional nutritive powers of its roots is even greater than that of its herbage. Its bad qualities, however, overbalance its good ones on account of the great difficulty of getting it out of the land when once it obtains a foothold. Of all the perennial grasses it seems to be the most permanent. You have only to injure the root with a plough, hoe or harrow, and a new sprout will immediately start up, and eventually become a distinct plant. This is rapidly hastened by the large amount of starch in the roots, and the result is that very many plants grow in the place of one. Usually branches do not grow from every joint; this occurs only when the roots are injured in some way. It is easily transported from place to place, either by means of seed or roots. For instance, a very common way of its introduction into a new district is by purchasing young trees from some nurseries, where it may occur among the roots. The seeds of this plant may also be present in other grass seeds, but as a rule they may be easily detected.

Its mode of growth, as we have stated, makes it very difficult to exterminate. Some methods, however, have been tried with success. We do not pretend to say that by any of the following methods every plant will be destroyed, but we do say that complete control may be obtained over the worst beds, by patience and perseverance in active work. We have had considerable experience with the weed, and have seen many fields literally thatched by proper efforts made to produce paying crops. In eastern Ontario it is very common. Some of the means to which we resort for its extermination are as follows:

1. Taking an average case for example, we would sometimes plough the piece of land under consideration once in the fall if we had the time. If not, we leave it until the following spring, after seed time, and prepare it for a summer fallow. (a) In this case we should use, after the first ploughing, the gang-plough only, as the roots do not penetrate very deep in the soil. It should be ploughed three or four times during the summer, choosing the warmest and driest times in the season. Weekly, if possible, it should be cultivated and harrowed thoroughly. The new spring tooth cultivators are excellent implements to bring the quack roots to the surface and expose them to the hot sun. Plough deep in the fall, and if there be any roots left, ridge up the piece. (b) It might be prepared for corn or root ground, when thorough cultivating, and hoeing at driest times of the year, prove effectual, and (c) perhaps the most effectual of any is to prepare as for summer fallow, giving it two ploughings in the spring, and sow buckwheat early. Directly it comes in full bloom or a little before, plough it under. It may be knocked down by attaching a chain to the plough-beam and whistletree. Follow with harrow, etc., and sow the second crop of buckwheat, which may be harvested or ploughed under. The buckwheat seems to smother the quack out by shading the soil, thus preventing the light from reaching it.

It also adds to the fertility of the soil at the same time. We find it is best to kill the quack in the soil, if possible. It is very rich in plant food.

2. However, in extremely bad cases we have to plough, cultivate, harrow; the horse-rake is then applied and the quack is raked into winrows. These may be burned or carted off the field. These operations are required repeatedly through the course of the season, and at dry times, if possible.

3. After removing a spring crop, plough to the depth of three or four inches with gang-plough, cultivate and harrow as before, but in the fall or early winter, after a severe frost, which freezes so that a crust is formed, take the big plough and ridge the field up as for turnip drills. This allows the frost to act more readily upon their roots, and in the spring it will be found that the roots of the plants are heaved out, so that with the cultivator and harrow the most of them are brought to the surface. We have tried this method with good effect.

4. In seeding down a field with quacky patches, over these patches sow the grass seed very thick. This will give a fine short growth of herbage, but will smother the quack.

Robbing the Land.

[This paper was read by the Editor before the Ontario Creamery Association, held in Toronto, 24th February of last winter.]

This grave offence against country and self may be committed in a two-fold way, at once positive and negative. The former consists in taking away from the land its rightful due, and the latter in withholding the same from it, and the effects in either case are baneful. When the elements of plant food are taken away from the soil without being restored in some other form it is robbed, as in continuous cropping and marketing of the grain or fodder; and when the elements of fertility are allowed to waste, as in the leaching of manure, it is also robbed. In no instance has this ever been done since the dawn of creation without some person having to pay a heavy penalty exacted by indignant nature.

Certain elements of plant food, as nitrogen, phosphorus and potash, have been committed to the soil by a beneficent Creator, in most places in a bountiful but not in an unlimited degree. Every crop grown upon a given area is a drain upon this fund, and when the amount of this plant food removed is not given back in equal quantity in some other form, it will surely in time be exhausted, just as surely as a bank fund will come to an end when there are repeated drafts without any fresh deposits, hence, when lands are repeatedly sown with only a scant return made to them, but one result must be looked for eventually, and that is a most hopeless sterility.

The truth of this position is so apparent that it scarcely needs demonstration. A little child knows perfectly that where ten apples are his property and one of them is eaten every day, in ten days they will all be gone, but that if on each successive day he puts back another as good as the one removed, at the end of the ten days he will be just where he started. So, if a given area has plant food just sufficient for ten successive crops, and these are grown one after another, in ten years the supply is gone, but if each year, or indeed at irregular periods, an equal amount were given back, the land at the end of the ten years will just be where it was at the outset, neither richer nor poorer.

To expect exhausted soils to renovate themselves is a vain hope unless it be through the rest of long years, and the accumulations which an increasing vegetation always gathers. The restoration of fertility is never by miracle, for since that eventful day when the sons of the morning looked down from the ancient hills of immortality upon a newborn world, not one material particle has been added to our earth, fully equipped for a voyage through the fields of space, till time shall be no more. So that to expect potash to be replaced without giving nature time to do it, or replacing it in some other way, is a delusive hope.

That lands may be sustained in undiminished fertility is made very clear by the processes of nature. We can readily conceive that American savannas are vastly more fruitful than at the commencement of our era, and simply through the accumulation of plant food grown upon the soil which enabled it more and more liberally to feed itself. The North American forest-tell the same tale. The annual self-enrichment given to themselves and by themselves every autumn, continuously increased the capabilities of the soil, so that