

unfortunately located near careless or indifferent farmers.

Weeds are largely distributed by the following means:

1. Along with grain obtained from other districts.
2. Animals carrying seeds attached to their bodies.
3. By the wind, where seeds are supplied with structures which enable them to be blown about.
4. Threshing machines carrying seeds from farm to farm.
5. Renting farm for a short time to men who are indifferent to the condition in which they leave the place, better or worse, and usually worse, than they found it.
6. Manure from city stables.

With such odds against him a farmer who desires to keep his fields clean must be vigilant, industrious and painstaking. However, if he observes the following hints he will succeed in destroying weeds.

1. Cultivate the land thoroughly.
2. Watch the roadsides and fence-corners.
3. Never allow the weeds to seed.
4. If possible, never allow weeds to have the benefit of sunlight: this can be effected by constant and thorough cultivation, and will soon result in a clean farm.
5. Secure the co-operation of fellow-farmers.

A knowledge of the nature of weeds becomes of importance in destroying them. Annuals live but a year, bear many seeds and when young are weak and tender, such as shepherd's purse, mustard, cockle, pennycress, wild oats, chess, ragweed, chickweed, sow thistle.

Biennials continue two years and usually have a tap-root. Unless these plants are cut below the surface, cutting increases their vigor. Wild carrot, blueweed, burdock and mullein are biennials.

Simple perennials continue from year to year and will re-appear till the root is utterly destroyed, of which are the ox eye daisy, mallow, chicory, bind weed, sorrel and campion.

Creeping perennials are more or less jointed in the roots, each joint capable of growing if separated. Continued cultivation and smothering from light are necessary to kill these, among which are Canadian thistle, couch grass, toadflax, milkweed and sow thistle (perennial).

Sonchus arvensis (perennial sow thistle) has made its appearance in the neighborhood of Stratford, from which the specimen sent to the college came. It is considered a troublesome weed in the old country, and belongs to a class the representatives of which are very difficult to destroy on account of the creeping rootstock already referred to. Like all members of the order *Compositae* it produces many seeds. It bears a close resemblance to the common sow thistle, having a flower not unlike that of the dandelion, but the flower stalk, especially near the flower, is quite hairy. This weed being a perennial is likely to prove far more troublesome than the annual sow thistle and consequently should be kept under.

Thlaspi arvense (pennycress) has appeared in the vicinity of Almonte. It belongs to the order *Cruciferae* and is closely allied to the mustard. It is well-known along the Red River as French-weed and in that country has become a nuisance, having in some cases almost completely overrun the fields. No doubt it has reached Ontario in seed wheat from Manitoba; it should be destroyed at once, before it gets a foothold. The following description may be of service to identify it: pods round, flat, with broad wings and a deep notch; leaves oblong, arrow shaped at the base, toothed, smooth; flowers white and very small; plant about a foot high. It derives its name, pennycress, from the size and shape of its seed vessels, which resemble silver pennies. Though found to some extent in Quebec, it is rarely seen in Ontario. Its introduction should be looked upon with suspicion, for (bearing many seeds) it will soon spread if not kept under and prove here as troublesome a weed as it has in Manitoba.

Report of the Judges on Prize Farms for 1886.

(Continued from July)

THE SEED FARM.

One hour after the turning of the day found us scanning, with a careful and delighted eye, the "Seed Farm" of Mr. Wm. Rennie, seedsmen, of Toronto, who, though he has removed to the city of Toronto, as thousands of our farmers are aware throughout the

Dominion, to whom for many years he has supplied seeds, still cherishes a deep-rooted love for rural pursuits, and carries on his work on a far more scientific basis than most of the farmers of Canada.

The farm, lot 14, 2d concession, Markham Township, 15 miles from Toronto, and $1\frac{1}{4}$ miles east of Yonge street, was once the paternal estate, and was rented for many years by its present proprietor, who took it under his own supervision some five years ago, when it was, as long rented farms usually are in this country, a favorite home for many kinds of weeds. The fences were a melancholy sight, and the soil, naturally a rich clay-loam, just hard enough for working with comfort, and resting on a pretty hard sub-soil, was extracted of most of its natural fatness. In possession of the knowledge of these facts we viewed with amazement the transformation, surely almost without a parallel in so short a time.

It contains 120 acres, running half way to the rear of the concession, and forms a very gentle slope, inclining to the north-west, which is only disturbed by a few gentle swells, which gently disappear in the direction indicated. It contains but three fields, thus reducing the fencing to a minimum.

The ten acres of woods on the north-west corner of the farm has an open ditch cut along its northern side, which drains the forest, and in the channel of which the waters of a cooling spring flow all the year. The draining of the forest seems to have caused the ash timber to die, which has therefore been removed, which allows plenty of daylight to come in and sustain, with a good deal of vigor, the mixed grasses sown amidst the trees, and which have formed already a pretty heavy sward. The amount sown on the ten acres is 300 lbs., and embraces lucerne, red, alsike and white clover, orchard grass, red top, blue grass, wood meadow grass, meadow foxtail, perennial rye grass, hard fescue, sheep's fescue and meadow fescue, yellow oat grass and timothy. But we are by no means sure if this method of treating forest should be imitated by the average farmer, as we are of the opinion that treading amongst the roots by stock has a tendency to kill the trees. Ordinarily we would rather see it in a wilderness state, stock kept out altogether, and a strong growth of underwood, annually making up by its yearly advance for the mature wood removed to supply the needs of the farm.

The buildings could not have been more conveniently placed, nor the site which they occupy so well chosen in relation to its proximity to every part of the farm. Keeping in view an elevated position, and getting the building conveniently located is a wonderful labor-saving factor in the course of a lifetime, and even in the course of one year. The house is frame, neatly painted, has a pretty lawn in front surrounded by a snow white paling, which always has a chaste appearance around any lawn and through all the year. The barns occupy three sides of a square, open at the south. They are sufficiently capacious for the wants of the farm, and are fairly well adapted to the keeping of horses, but are not so well convenient for the keeping of cattle. The waggon and implement house are detached and have a cellar underneath, which is often used for storing potatoes, the other cellar being under a compartment of the main barn. A tread power is used for chaffing purposes and other work that may be required. The outbuildings are neatly painted with a preparation which, though not costly, looks very well. It was done with an outlay for material as follows: In 1883, 1 brl. boiled oil, \$26; 2 brls. black oil, \$12; 400 lbs. red mineral paint, \$10; 7 brls. coal tar for roofs, \$21. In 1886, 200 brls. red mineral paint, \$5.50; 1 brl. boiled linseed oil, \$26; total \$100.50. The buildings thus painted are of the average size of farm buildings for 100 acres.

Trial grounds to the extent of two acres extend westward from the outbuildings, in which new varieties of grain, seeds, tuberous roots and flowers are tested. In this plot, which is under the care of one of Mr. Rennie's sons, prize roots and tubers have been growing for many years. This year field roots have been sent from it to the Indian and Colonial Exhibition, of enormous growth, which cannot fail to evoke the surprise of Englishmen as to the great capabilities of our soil. This trial ground, surrounded by a neatly white-washed paling and a Norway spruce hedge, pushing rapidly upward, was not taken into the estimate in considering the award, being outside the usual course of farming. Although in a sense it draws from the substance of the farm, both as regards occupancy and by demands on the manure pile, it also drinks all the liquid soakage from the barnyard, which is concen-

trated in this plot by means of a covered drain, and distributed from a tank to any desired part; yet something was allowed as an offset for the fruits and vegetables used on the farm.

The condition of the private roads merits great praise. The one leading to the steading was comfortably thrown up and gravelled, all done by the farm teams when not busily employed otherwise, the one going to the bush plot beautifully rounded, smooth as a pavement and sown with grasses, and so of that leading to the rear.

The fences were either board or straight rail and were very neat, those enclosing the drive to the bush being prettily whitewashed. They were lined with handsome soft maples along the front of the farm, and by the entrance drive.

There was a full supply of implements, each in its place in an open shed prepared for them, and protected by a movable fence. The implements were in a fine state of preservation, each being nicely cleaned when not in use, which tends very much to the prolongation of the term during which these shall last.

The five-course system of rotation is adopted at the "Seed Farm." Two years meadow, third year grain, fourth year roots and other heed crops, and the fifth year grain on which mixed grasses are sown. The cultivation of this farm is most thorough. When the hay fields are broken up the sod, covered with a heavy aftermath, is ploughed in the fall and sown in early spring with oats or peas. As soon as the grain is off in the fall the manure is drawn from the barnyard, about 15 loads per acre, and ploughed under lightly. In two or three weeks this is harrowed to germinate all seeds, and thus destroy them. Toward the end of October the field is ribbed with a double-mould board plough and cross furrows are run to carry off the surface water. When the land is dry the following spring it is ploughed and cultivated and then sown with artificial manure. Prepared night soil was used in the spring of 1886, 7 loads per acre, where the carrots and mangolds were grown. This was drawn from Toronto by the return teams in winter, and cost \$1 per load in the city. The drills are made with a double-mould board plough, and the mangold and carrot seed is sown with a horse drill as soon as these are made. About two weeks after sowing the space between the drills and bean-rows is sub-soiled. The scuffer is then kept going and the plants thinned early, the mangolds to 14 or 15 inches in the drill and the carrots half the distance. They are always harvested and placed in the cellar, the mangolds by the 25th October, and the carrots by 1st November. The excellence of this system of root culture is manifest in the prizes awarded to Mr. Rennie, repeatedly, by the East York Agricultural Society, for the best field of these.

The land is then ploughed for spring grain; barley or spring wheat is sown with mixed grasses. The grain is all drilled; $1\frac{1}{2}$ bushels per acre of barley and wheat, 2 bushels of oats, and $2\frac{1}{2}$ bushels of peas; 24 pounds of mixed grasses are sown to the acre. Thirty acres have been sown of the following variety: red clover, alsike, timothy, perennial rye grass, orchard grass, Indian rye grass, red top and Kentucky blue grass, and 15 acres of the same varieties, omitting orchard and rye grass and substituting meadow fescue. There was, then, this season 45 acres of meadow (mixed grasses), 15 acres spring wheat (red fern), 15 acres mensury barley (imported seed), 15 acres oats (Black Tartarian), 4 acres crown peas, 10 acres of woodland pasture (mixed grasses), 2 acres potatoes (East Ohio and Halton Seedling), 3 acres of beans, 1 acre white Belgian carrots, 2 acres mangolds (mammoth long red and intermediate), 5 acres new land in fallow and being stumped, and 3 acres trial grounds, orchard and building sites.

The seed farm is well underdrained, but not perfectly so. In one of the hay fields was a strip without under-drains, which could be detected in a moment, by the comparative lightness of the grass growing on it. In another barley plot one of the drains had clogged about grain sowing time and left an eyesore for a considerable radius, although in the autumn visit there was no trace of this. There is but one open drain on the cleared portion of the farm, and it is contemplated to close it by using tiles sufficiently large. The draining of this farm has worked wonders in the line of production, the soil being somewhat stiff and the sub-soil hard, in many places hard pan; before the tiles were laid the surface water was troublesome, affecting the crops adversely. Every foot of it will soon be under-drained, and all with tiles.