

so on earth roads as on stone and gravel roads. A road that is underdrained will dry up more quickly in the spring than one that is not, and the mud will not get so deep. In addition to drainage, it goes without saying that logs, stumps and boulders should be removed. There are venerable stones standing a foot or more above the surface of many a rough road, which son, father and grandfather have driven over since the first settlement. They have destroyed buggies, wagons and harness for many a year. Why not get them out?

Straighten the road, and make the grade of uniform width. A crooked road, following the angles of a snake fence, is an abomination. Many of the crooks are merely a memory of the place where a stump formerly stood. If turns are necessary, make them at hill-tops; that is, make the road straight from hill-top to hill-top, and in this way the turns are less noticeable.

Let the improvement of the road itself extend to the roadside. A neat, trim, level roadside, with a row of trees bordering the road, is an improvement of the greatest value. To neglect the roadside is to neglect the farm, for the road is practically part of every farm. It is objected that shade trees on the roadside may impair the road. This is true to a certain extent only, and is a matter of planting the trees a sufficient distance from the road. Do not plant trees close to the road. It is better to put them on private property, inside the fence. Use common Canadian trees. There are none that surpass the maple and elm; or, if desired, use fruit trees. Nut trees, such as hickory, chestnut and walnut, are also effective. Southern Ontario has been stripped of forest trees to an extent that is most regrettable, and to plant trees along the roadside is but a slight return for past destruction.

Can a drag be used on a gravel or stone road? Yes, but here the process must be reversed. Never place soft material over a hard bed of gravel or stone. Use the drag (with the plow and harrow, if necessary) to cut off the shoulders, and to throw the sod and soft material outward. High, square shoulders do all roads much injury, as they prevent proper surface drainage. Cut them off so that the water can get away from the hard-road surface. Turn it across the open ditch if necessary. The split-log drag can be used effectively for this work early in the spring, but after the ground hardens it is of less value. When the soft sides have been cut away, it is then in order, if the road requires it, to restore the crown by putting on a coat of new stone or gravel. But, as has been previously stated, do not attempt to crown the gravel or stone road by placing soft material upon the hard metal.

The full benefit of the split-log drag will not be realized until taken up by township councils, and a systematic plan adopted for dragging all the earth roads of the municipality. But councils, as a rule, move only as fast as the voice of the ratepayers demands. For the present it rests largely with individual farmers to take the matter up, make drags for themselves, use them for a season to convince themselves and their neighbors of the benefits of dragging. Out of this will grow the public opinion that will lead to the wider and more comprehensive system. Such a system can be established whether statute labor is in use or is abolished—and numerous townships of the Province have done away with statute labor. Already one township (Clinton, where Mr. W. B. Rittenhouse used a drag last year) has ordered fourteen drags for township use.

The grading, crowning, draining and straightening of earth roads, such as has been outlined in this article, is all work that is preliminary to the making of a durable stone or gravel road. A large part of the waste that has characterized roadmaking in Ontario has arisen from neglect of this preliminary work. It has been like building houses without laying foundations. If the improvement of earth roads is carried out in a judicious manner, holding them to a permanent crown and grade with the split-log drag, straightening, levelling, draining, etc., as the circumstances require, the way will be opened up for a much more rapid extension of stone and gravel roads, at the least possible cost. Much is to be expected from the humble split-log drag.

A CONTRAST IN ROADS.

The following experience was related recently by a correspondent of our esteemed Iowa contemporary, Wallace's Farmer. The writer had occasion to make a long drive about the end of February. Here is the condition of the roads as he found them:

"The roads were sloppy and muddy. It was not deep in the morning, but full of splash. After three or four miles, horse, driver and rig were plentifully besprinkled with yellow clay spots, intermingled with other darker splotches containing more of Iowa's fertile loam. Soon our white collars assumed a polka-dot complexion, and little dots of mud, like monstrous freckles or warts, appeared upon our cheeks, chin and nose. Occasionally huge snowdrifts, fence-high, would reach across the road and silently admonish, 'Halt!' Fortunately, ways were opened up through the fields, and we were able so proceed.

"As the day grew older and the sun warmer, the mud became deeper and less splashy. When within a quarter of a mile of our final destination, we suddenly drove out of deep mud onto a dry road. We looked for the cause, but could not discover it. The conditions ahead and behind

seemed identical, and yet behind was mud reaching to the fetlocks of the horse; ahead stretched the road dry and smooth. A cross-fence stretching away north and south on either side of the road, indicated that the dry road began at the outside limits of the farm we were approaching. At the house we made inquiry about the road, and were informed it was a bit of 'Wallace's Farmer Good Roads.' Last summer, and into late fall, the quarter mile of road had been worked along the lines suggested in Wallace's Farmer (with the split-log drag), and there it lay, with miles of mud on either side, a dry, smooth testimonial to the efficiency of the drag and your good-roads recommendations."

M.



Triangular Form of Drag Used by W. H. Speers.

THINK SUMMER-FALLOWING A NECESSITY.

Editor "The Farmer's Advocate":

We are pleased to see that a discussion has arisen in the columns of "The Farmer's Advocate" on the summer-fallow question. We agree with Mr. F. Foyston that it is necessary to summer-fallow, in order to efficiently combat with the noxious weeds that are rapidly spreading in this Province.

We also saw an article, written by some unknown person, who thought he could keep down weeds by a three or four-year rotation, using corn as a crop with which to clean the land. We have tried this method, and find that, in spite of all we can do, natural grass, quack grass, thistles, and quite often daisies, will appear in the first crop of hay, when seeded down thus. He also speaks of going through the corn with the hoe the last of July. Now, as this is a very busy time of the year for the average farmer, we would like to know who has time to go through fifteen acres of corn, whereas the summer-fallow can be easily tended to between times.

We also find that, in order to grow a big crop of first-class timothy hay, it is necessary to sum-



Drag Used by Matthew Williamson.

mer-fallow and apply a coat of manure. Some people complain that one year's crop is lost. This is not so, for what is lost is more than made up in the succeeding years, besides getting rid of many weeds that otherwise could hardly be gotten rid of. The hay, also, will bring a higher price, if offered for sale.

For summer-fallowing, the ground should be plowed the fall before, then it can lie till the rush is over in the spring, then plowed with a two or three sod plow. Keep all weeds down by frequent cultivation. It should be plowed again, as before, in about a month's time from when it was first plowed, then kept well worked till the first of August, when the grass seed should be sown. A light coat of manure, spread evenly on the field as a top-dressing, will add greatly to

the crop; also protect the grass in winter. Clover seed can be sown the following spring, whichever kind is best adapted to the soil. We have never failed to have a catch when handled as stated above, whereas seeding down with corn is only chance-work.

We are talking from a twenty-years' experience on a good farm, and would like to impress on the minds of the rising generation of farmers the need of good farming. We would like to hear the opinion of other interested and experienced farmers on this important subject. We consider summer-fallowing a necessity, and not an evil, either.

MORTON GIFFIN.

Leeds Co., Ont.

[Note.—The "unknown person" was one of our editors, and he was writing not of what he thought he could do, but of what he has actually done, as well as of what many others, among them some of the best farmers in the country, have done. It is not difficult to keep a cornfield quite free of weeds, if it is properly cultivated, which most cornfields, unfortunately, are not. The true remedy lies not in summer-fallowing, but in more early, more frequent, and more thorough cultivation of the land under corn and roots. This attended to, there will be very little left to do with the hoe, and summer-fallowing will be unnecessary, except in rare cases, as when a field is badly infested with bindweed, perennial sow thistle, or possibly couch grass. We agree with our correspondent as to the uncertainty of obtaining a catch of clover with corn. We had not recommended or even mentioned this. The allusion was to seeding with spring grain after corn.—Editor.]

SAINFOIN.

Editor "The Farmer's Advocate":

Sainfoin has attracted much attention as a fodder plant, and also as a honey-producer. In its cultivation and manner of growth it resembles alfalfa (but it is slightly finer, and grows thicker in the bottom), having a more decided stooled habit, which makes it better for pasture. It is especially liked by sheep and cattle. The soil best suited to the growth of this plant seems to be a deep, rather dry loam, containing a fair proportion of lime, with good natural drainage. It will do well upon almost any soil that is well drained, provided it gets a good start. Heavy clay and light, sandy soils both produce excellent crops of sainfoin, but on the latter it naturally requires generous manuring. It should never be sown on land likely to be covered with water at any season of the year. The amount of seed sown—of hulled seed—is 40 to 50 pounds per acre; if the hulls are on, it will require 80 to 100 pounds per acre. Great care should be taken to secure new and plump seed. A good seed-bed is of great importance. If the field has been in meadow, pasture or grain, do not plow, but simply cultivate and harrow. First cultivate as shallow as possible, then pass the heavy iron harrows at a good sharp walk across the first cultivating. This operation will break up the sod or stubble very fine, and leave it on the surface to dry out. The second cultivation should be in opposite direction to the first, and likewise the harrowing. It usually requires about four cultivations and four harrowings to make a perfect job. All this work must be done on fine, sunny days, and as soon after harvest as is possible. Every particle of growth must be kept out of sight, and all vegetation brought to the surface to be dried out by the sun. This dead but valuable material may, during the autumn, be plowed under, to decay and add fertility to the soil. By the next spring, this land should be in perfect condition for sowing. The best time to sow is as soon as the ground is in good condition in spring; the seed will then germinate quickly. As sainfoin is a quick-growing and deep-rooting plant, the roots keep going down into the moist earth, so that dry weather will not have much effect upon it. If sown with a nurse crop, oats, wheat or barley may be used, but the latter is preferable, as it can be harvested earliest. Not more than half the ordinary amount of grain should be sown per acre with sainfoin, and better results are usually obtained by sowing it alone. The seeding may follow a hoed crop, but, whatever the preparation of the land, it must be clean; and, as the seeds are small, it is essential to have it in a good state of tilth. This plant, like alfalfa, will stand many years. As is well known, legumes of all kinds are the most valuable plants which can be grown, and plowed down as fertilizers, and the benefit of plowing under sainfoin would more than pay for the resowing every third or fourth year.

Sainfoin sown May 14th came in bloom on August 12th of same year, was cut for hay on August 25th, and gave a yield per acre of 1 ton 1,700 pounds of cured hay. The second growth of the first year should be allowed to stand over for the winter as a protection to the roots. In the second year, the plants came into bloom on June 1st, and lasted up till the 24th of that month, when the plot was cut for hay. These