

to do so until the growth of the leaves will not permit, using a one-horse lever cultivator with knives attached to the back, removing both outside teeth, and using one in the center in front.

As to the amount of acreage to grow on an average one-hundred acre farm, it would depend largely upon the amount of help available—not exceeding from two to ten acres.

One of the most essential things is to do your work thoroughly, and go about it in a regular business way, and there is no doubt one will be well rewarded for his efforts.

EDWIN L. ALLEN.

Alfalfa as Fodder.

The merits of alfalfa clover as a soiling crop, to be cut green and carried to the stables, or to be cured for hay, are not known and appreciated in this country as they should be. There is no other fodder crop that grows so rapidly in spring and is ready to cut for soiling purposes at so early a date, while its feeding value is of the highest order. It is a crop that once well set in suitable soil will stand for several years without re-seeding, and may be cut three times each season, yielding a large amount of valuable fodder. It makes the most palatable of hay if cut before it gets ripe, and all classes of stock relish it and thrive upon it. For the best results, alfalfa should be sown alone, not mixed with other grasses, as it ripens before any other variety, and must be cut when about one-eighth of the heads are in bloom, and before the stalks begin to get woody. It should be sown as early in the spring as the soil is in fit condition to work well, but on a well-prepared seed-bed; any time about the middle of May is a suitable time to sow. It is preferable to sow it alone, at the rate of 20 lbs. to the acre, without a nurse crop, but if a nurse crop of oats or barley is sown with it, the nurse crop should be sown thin, not more than one bushel per acre, and cut for hay before it is ripe, in order to give the alfalfa a fair field in which to prosper. If sown alone, it may be cut once the first summer; if with a nurse crop, it should neither be cut nor pastured the first year, if the best conditions for future usefulness are desired. An acre or two of alfalfa near the barns will be found a great convenience for early cutting of green feed for horses, or for young cattle kept in stables, while with a piece of portable fence a part of the plot may, with great advantage, be fenced off as a pasture for pigs, calves or lambs, for all of which it provides first-class forage.

Drainage Controversy.

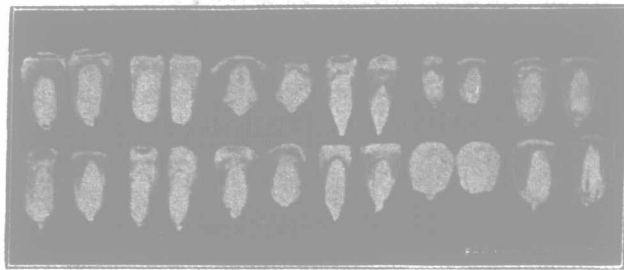
Two subscribers to the "Farmer's Advocate" have had an argument upon the article, "Drainage," by D., in the April 21st issue, and ask for a discussion of the subject. A. says drains made three to four feet deep are not as good for the purpose of drainage as are drains from one and a half to two feet. He has had fifty years' experience in Ontario, and is supported in his opinion by several practical farmers in his vicinity. B. is of the same mind as D. in the article referred to. In discussing this subject D. explained how the increased depth of drains improved their effectiveness, by lowering the water level in the soil, thus deepening the feeding ground for roots. Depth of drains, and their distance apart, are so intimately connected, however, that we cannot fix upon one without taking into account the other. A drain must be deep enough to be out of danger of frost. This is not less than two feet, though drains nearer the surface than this have done good service for some time, but cannot be regarded as safe. What is the most suitable depth will depend largely upon the soil. When drains are put down they draw toward them water from both sides, but the water level between two drains is not necessarily as low as the drains, the water level depending on the porosity of the soil; in fact, the water table is invariably a curved line, which would reach the surface, between the drains, were they far enough apart or not deep enough in the ground. The advantages of deep drains, provided they are close enough together, are a greater amount of soil is made available to crops, consequently fewer ill effects are felt from drouth, and there is room for more water in the soil in times of heavy rains, so that water may rise considerably above the drains for a short time without seriously affecting the crops. No doubt there are cases where A. would be perfectly correct in his contention, as, for instance, where the basin of land to be drained is small, and where surface water is present only on rare occasions. We shall be pleased to have for publication the opinions of readers who have had extended practical experience with tile draining upon the points raised in this discussion.

Selection of Seed Corn.

Now, before the beech leaf, according to the old saying, reaches the "size of a mouse's ear," might be a good time for testing the vitality and character of the corn that is to be planted. If left later, the chances are that the work will not be done at all, and that, consequently, the corn-planter will lose in his harvest, though he may gain somewhat in experience. It is now accepted as an axiom that the farmer who would raise good crops of any kind must select good seed. In the plant world, as in the animal world, like follows like; given normal conditions, the progeny will resemble the parents. Misshapen seeds will produce misshapen plants; seeds not fully ripened will produce imperfect plants; those lacking in strength and vitality will possibly, with the atavistic tendency of all things which are not in progression, produce others even more lacking in strength and vitality than themselves.

Now, no crop is more responsive to judicious and persistent selection than corn. Given little attention in this line, and it can be made miserable stuff; given care, and it may be made to improve wonderfully. Many people just plant it year after year without ever closely examining the character of the seed, others would select if they knew just how to do it. The accompanying plate, taken from Bulletin 77 of the Iowa Agricultural Experiment Station, should be a help to all who have not heretofore made seed corn a study. In it, Nos. 1, 2, 11 and 12 show the best forms in the order named; Nos. 4, 5, 6, 7, 8, the poorest. As will be seen, the finest kernels, those which possess the highest feeding value, as well as the highest vitality, are full and plump at the tips next to the cob, not long and narrow like the "shoe-peg" type; they also have a large germ, and are uniform in shape and size. This last quality shows its value when planting time comes. If kernels be of all shapes and sizes, it will be found impossible for any planter to "put in" an even number per hill.

But in order to obtain the best possible crop, it will also, to an even greater degree, be necessary to examine the ears of seed corn. These should be well-proportioned, full in the middle, with well-developed



butts and tips; the rows also should run straight, and the kernels should be of uniform height. The following "ear-marks" are unfailing indexes of inferior and degenerating ears: (1) The tapering tip, running off to a sharp point. (2) Poorly-developed butts. (3) Rough or uneven surfaces. (4) Wide spaces between the rows. (5) Rows running in spirals. (6) Irregularity in size, shape and dent of kernels. (7) Nubbins or scrub ears. (8) Full development of some of the kernels and suppression of others. The planting of corn from any such ears as these will only result in a poor yield for the time and labor spent, a deterioration in character and utility of the crop. Recognizing this, the farmer should see to it that he plants only the best class of kernels, procured from the best class of ears.

One other particular is worthy of attention. Only those varieties of corn should be planted which shed their pollen and mature at the same time. The reason is this: From each ovule in the undeveloped kernel there runs a tiny strand of "silk," the aqueduct which is to carry to the nucleus the pollen liquid essential to develop the kernel into the full seed. Now, it may be readily seen that if part of the silk receives the fertilizer from the pollen of an early variety, and part from that of a late variety, the kernels will not develop evenly, the early-maturing ones growing so rapidly as to crowd the softer growth of the adjoining later maturing ones, with the result either of suppressing them, forcing them out of shape, or even causing them to split open. When such ears as these are stored, the kernels which have thus failed to ripen properly often mould, and in a short time rot. As a final word, we quote from the Bulletin: "The question resolves itself into one of getting rid of these unprofitable ears, and of planting only vigorous ear-producing ones. On an average, one stalk in every seven produces nothing because of barrenness. One acre in every seven planted to corn is worse than wasted because of these unproductive stalks. Yet, a little time and care in selecting our seed corn—not a dollar in outlay is required—will materially lessen this enormous loss. We cannot pay too much attention to the selection of our seed corn."

Preparing for Turnips.

The season of preparation for another year's crop has come. If the land has been put into proper condition by fall plowing for the frost to do its work, the spring should find it in good mechanical condition. As soon as land can be worked in the spring, surface cultivation will form a mulch, and prevent the escape of soil moisture. This surface cultivation should be continued at frequent intervals, until the time for sowing has arrived. Another benefit of frequent shallow cultivation is the killing of weeds. This and the better mechanical condition of the soil resulting from this tillage will materially assist in the growth of the plants.

The manure should be got upon the land as soon as possible, in order that it may be thoroughly incorporated with the soil. The turnip, being a gross feeder, requires a large amount of plant food in readiness for assimilation. In the early part of June, if the cultivation is completed, drill from twenty-eight to thirty inches wide. Immediately after, roll the drills, either with a land-roller or the empty turnip seeder. This prevents the seed from being sown too deeply, and assists the soil moisture in reaching the seed, which is sown immediately after the rolling. This rolling is wasteful of soil moisture, but necessary to the germination of the seed in a dry time, and rain cannot be depended upon. The loss of moisture can, in part, be prevented by the use of the horse-hoe after the plants come up sufficiently to avoid covering them.

Huron Co., Ont.

FARMER'S SON.

Spraying for Mustard.

ALSO DESTROYS BINDWEED AND SOW THISTLE.

With the spring comes the perennial question of wild mustard. No need to warn farmers against the pestiferous character of this weed; there may be necessity to remind them, however, that nothing but prompt and extreme measures will ever eradicate it, and that every year delayed means a task so much the harder. Bulletin 216, issued by Cornell Agr. Exp. Station, adds another testimony to the efficacy of spraying as a remedy. At Cornell it has been conclusively proved that spraying with a three-per-cent. solution of copper sulphate (about 10 lbs. to the bbl., or 40 gals. of water), at the rate of 40 to 50 gals. per acre, killed the mustard when applied when the plants were young, without injuring to any extent the wheat, rye, barley, corn, grasses, peas or sugar beets among which they grew. Beans, potatoes, turnips and rape, on the other hand, were killed or injured by the solution. It was also found that the spray killed many other species of weeds beside the mustard, such as curly dock, black bindweed, dandelion, and sow thistle, while still others were in no way injured by it. In spraying it is necessary that the pump and all the fittings be of brass, as the solution is very destructive to iron. The vessels should be wooden, and the spray applied in bright, clear weather. In the absence of a regular apparatus, a common barrel pump can be used, placed in a wagon, with a spray nozzle at the end of a lead of hose, which may be swung from side to side behind the wagon, by means of a rod four or five feet long.

Sow Thistle—Sugar Beets.

To the Editor "Farmer's Advocate":

In answer to reader's article on sow thistle, I would say we seldom have any bother with it if it is taken in time. We found that sowing buckwheat, and cultivating late, generally made it disappear, and at the same time you had a crop of buckwheat to pay for your work, which I consider very good as a cover crop, sown at the rate of one bushel per acre. Buckwheat paid us better than any other grain crop last year. By sowing late we avoided the drouth, and had a splendid yield.

I noticed an article in the issue of April 21st, re cultivation of beets. I have grown them on different soils, sharp and heavy clay, and had good results on both, but never did I sow more than four and a half pounds per acre—more than that I considered a sheer waste. I always drilled twenty-six inches apart, thinning out to twelve or fourteen inches in the rows, and have taken off sixty Scotch cartloads, well heaped up, per acre, time and again, of splendid beets.

Leeds Co., Ont.

WILLIAM LENEY.

Success with Nut Trees.

I notice in the "Farmer's Advocate" some persons asking about black walnuts. I have about 2,000 of those trees growing now, some already bearing nuts, and younger walnut and butternut trees coming on. Those trees are good growers; they begin bearing nuts at ten years of age. The nuts are more valuable to sell than apples, as they fetch \$1.00 per bag. There is no hand-picking off the trees, bruises do not hurt them when they fall. The trees ornament the farm; they can be planted around for fence posts, and the mice will not girdle the bark like other trees—they do not like the taste of the bark. STANFORD ZAVITZ.

Middlesex Co., Ont.