

tion is advisable, however, when a legume is to be grown on land where it has never grown before; or where, though grown, the characteristic nodules or tubercles have failed to form upon the roots. Let it be remembered that the bacteria which work on red clover may not be depended on to adapt themselves to alfalfa. The bacteria which work on sweet clover, or mellilot, however, seem to be practically identical with

those of alfalfa, hence land where sweet clover has been growing will furnish alfalfa with all the bacteria it needs.

As pointed out in the bulletin, the simplest way to inoculate a new field to be seeded to alfalfa or clover, as the case may be, is to scatter over it a load of surface soil from an established field of that particular

crop, but where the soil has to be hauled too great a distance this method becomes expensive, and for such cases the nitro-culture treatment is worth a trial. Remember, that nitro-culture is of no use to crops except legumes—for instance, alfalfa, clovers, beans, peas, vetches; or, as they are sometimes called, the pod-bearing plants.

Varieties, Cultivation, Seeding Methods in Eastern Canada.

At this season our readers expect us to place before them some information concerning varieties of farm crops and methods of cultivation. It is our experience that this is best done by publishing a number of letters from practical farmers all over the country. The following questions were mailed to a selected list of reliable correspondents, many of whose answers appear below:

1. Favorite varieties of oats, barley, spring wheat, peas, corn, potatoes, mangels, turnips, and any other crops grown in your county. Indicate which ones are preferred for heavy, which for light, and which are most suitable for very rich land where the grain is inclined to lodge.
2. What proportion of the total grain crop is usually seeded down? What grasses and clovers are used most largely, and how much seed of each per acre? Is alfalfa making headway?
3. Describe in a few words the general method of rotation in your neighborhood. What is the usual preparation for grain?
4. What implements are principally used to pulverize the soil? What kind of a drill is preferred, hoe or shoe?
5. Are three-horse and four-horse teams coming into vogue?

J. E. McINTOSH, Glengarry Co., Ont.—The favorite varieties of oats in this section are the Banner and Siberian. The Danish oat has also given good results. The straw of the latter is clean and strong. Spring wheat is not so largely grown as formerly; it is not so certain a crop as many others. White Russian seems to be the favorite variety, however. Barley is sown to a considerable extent, and has proved a profitable crop. Peas, also, were a splendid crop last season. Corn is now grown by almost every farmer in this section of country. Early Compton is the favorite, especially with owners of silos. Silage corn has taken the place of the root crop to a large extent. The potato crop was, to a great extent, a failure the past season, owing to an unusually wet spring. Many fields were almost completely drowned out. The varieties grown are almost as numerous as the growers. About a third would be a fair average, I think, at which to put the proportion of land seeded down. Timothy is the favorite grass, though the percentage of red and alsike clover is growing every year. Alfalfa is practically unknown here. The usual rotation is pasture, grain, hoed crop and grain seeded down to timothy and clover. In many cases it is still hit-and-miss. The disk harrow has come into general use, hardly a farmer now being without one. That and the spike-tooth harrow, and, to a limited extent, the weeder, are about the only implements used for this purpose. Where a drill is used, the hoe drill seems to have the preference. Three-horse teams are now used by many of our farmers on the riding plow, disc harrow and binder, but the four-horse team has not yet made its appearance.

J. G. CORNELL, York Co., Ont.—The varieties of grain grown in Scarborough are largely as follows: Oats, Banner, Sensation and Siberian; some have tried the thick-hulled varieties, such as Storm King, Tartar King, etc., but find that they lodge as badly as any and are too thick in the hull. Barley, Mandscheuri and common Six-rowed; the Russian varieties stand up best on rich land, and also give the best crop on sandy soil; the Odessa would be best for very rich land, as it is somewhat stronger in the straw than Mandscheuri. Spring wheat is not grown to any extent here; White Russian and Wild Goose are grown on some farms. Peas, Canadian Beauty and Golden Vine. Corn is grown largely for ensilage, and silos are going up every year. Leaming and Compton's Early being favorite varieties. Potatoes are not grown so much as formerly, owing to blight; the New Brunswick Delawares have been largely planted lately, but do not grow to the size of the imported potato, but are of good quality; Rural New Yorker and Empire State are also grown. Mangels are chiefly of the Yellow Intermediate varieties, and also the sugar feeding mangel is largely grown. Turnips, Purple-top Swedes and Kangaroo. Mixed grain is largely sown—oats, barley and peas, also oats, barley and flax have been tried; some add one peck of wheat per acre to the oats-and-barley mixture. About one-third of the grain crop is seeded down with clover and timothy; about 10 to 12 pounds per acre of mixed seed is used, about equal quantities in mixture. Alfalfa is not generally grown, although a few farmers are seed-

ing a few acres to try its value. The rotation followed is largely roots, barley, clover and oats. Many leave meadow two years; the second year it is largely timothy, which is marketed in Toronto. On autumn-plowed land the preparation for grain is as follows: Cultivate with spring-tooth cultivator, harrowing sometimes before; if very lumpy, it is rolled before sowing. The hoe-drill is most used, more so than formerly, when some used the spring-tooth combined cultivator and seeder, doing both at the same time. Three-horse teams are more largely used every year, and implements with a wide range—two-furrow plows, wide harrows, 13 to 15 hoed drills—are displacing the narrower ones.

H. H., Lincoln Co., Ont.—Our soil varies from heavy clay to clay loam, and rich black soil, which, before being cleaned, was swampy. We have no light soil. At present the most popular variety of oats is Siberian, with American Banner next. Ligowo and White Australian were quite extensively grown for a year or two, but the latter has been discarded on account of its very late ripening. A small plot of Joannette did very well on the rich, black soil last year, and will be tried again. In barley, Mandscheuri is rapidly displacing all others, and is doing so by its merits. There is no spring wheat grown. Golden Vine peas are the principal variety grown. White Cap Yellow Dent corn, on high land, and Angel of Midnight, Eight-rowed Yellow and Red Glaze on black soil, have given good results for husking. Early Ohio and Empire State are, respectively, the best early and late potatoes. Yellow Leviathan mangel and Giant White feeding sugar beet yield as well as the Long Red varieties, are of better quality, keep longer, and are much more easily harvested. Turnips do not do well on our soil. The proportion of total grain crop seeded down varies greatly with individual farmers. From one-third to two-thirds or more is the range. Common red clover, from seven to nine pounds, with two to four pounds of timothy added, is the mixture most largely sown. Some substitute a couple of pounds of alsike for part of the red clover, with good results. Alfalfa is steadily making headway. Rotation of crops does not receive the attention that it should. Sod plowed for oats and corn, followed by wheat, oats or barley, and seeded down to hay or pasture for two or three years, is the most usual method. Sod intended for grain is usually fall-plowed, and a seed-bed prepared the following spring. Corn stubble is usually plowed lightly, either in fall or spring, or, on loamy soils, is cultivated up without plowing. The roller, drag harrow and disk harrow are the principal implements used to pulverize the soil. The disk harrow and spring-tooth are used when the soil has become compact. Three-horse teams are quite often used, but I have never seen four-horse teams in the field.

ANSON GROH, Waterloo Co., Ont.—That particular portion of Waterloo Co. with which I am sufficiently acquainted to report upon, consists of a naturally-underdrained soil, tending from a good loam to a light, sandy soil. In general, the farms here are handled by a good class of farmers, sufficiently conservative to avoid visionary fads, and allow some of the more aggressive leaders to well prove any innovation before adopting it. In this way, improvements and advanced methods are being introduced slowly but surely and substantially. The soil is becoming more fertile and productive. The furrows are more shallow, the manure is being kept more near the surface, and more of it spread during the winter. The three-horse manure spreader is doing more of the work. Three-horse teams are becoming quite common, and even four-horse teams are in evidence, with such improvements as disk harrows, spring-tooth cultivators, two-furrow plows, drags, and even the prevailing hoe drill—all gradually widening in their sweep, and plainly showing the broadening opinion of the farmer to a reliance on more equine muscle under control of less human brain and brawn, relatively. Perhaps half the grain crops are seeded with from three to four pounds of timothy and six to eight pounds of common red clover. The meadows are not allowed to lie as many years as formerly—seldom over two years. The bare summer-fallow is a rare occurrence, the sod usually being prepared directly for wheat or the hoe crop, which may consist of: Potatoes, for early, perhaps, Irish Cobbler, or main crop,

Empire State, Pearl of Savoy, etc. Mangels, Yellow Intermediate or Mammoth Long Red. Turnips, Hall's Westbury, etc. Corn, mostly for the silo, Improved Leaming, White Cap Yellow Dent, Wisconsin White, Cloud's Early. Mandscheuri barley is perhaps more grown than all others together, but of oats it is hard to name varieties, as they are legion; among them are found the Siberian, Banner, Mortgage-lifter, Ligowo, etc. While a few of us have been treating the oat seeds for smut for a number of years, the practice is only just becoming general. Lucerne is gradually winning favor and a place on our farms, and peas are again being tried.

JOHN CAMPBELL, Victoria Co., Ont.—Siberian and Banner oats are more largely grown than any other, and give better results than the newer varieties. For several years Tartar King did very well; the past two seasons they have failed badly, with all oat crops below the average. Mandscheuri barley has a strong lead, being stiff in the straw, a good yielder, and weighs out well. It is the favorite variety, as it stands up well on all soils. White Russian and Blue Stem spring wheats are successfully grown in limited acreage. In corn, Compton's Early gives the best results. All corns matured remarkably well the past season, and no variety failed to any extent. Potatoes are all disappointing year after year; no variety can be mentioned as reliable. Mammoth Long Red mangels, once the general favorite, are giving way rapidly to the Yellow Intermediate. The latter, while not so heavy in yield, are much easier harvested, and are supposed to be of better feeding quality. In turnips, Jumbo, Kangaroo and Hartley's Bronze Top are grown, irrespective of soil. Widely-different results are obtained, owing, it is thought, to climatic influences. One-half or more the acreage of grains grown is seeded, as a rule. Red clover and timothy, with alsike seed at times, are used for hay and pasture, with frequently the clovers—red and alsike—sown separately, for obtaining seed the following year. In mixtures, six pounds clover and four of timothy per acre are sown; separately, six to eight pounds of red, and five to seven of alsike, are sufficient on good clean land. Alfalfa is not making much headway; people are experimenting with it. The rotation is, clover first, next hay or pasture, grain third year, roots and corn following, and the fifth year the land is seeded down with a barley or wheat crop. Many follow one grain crop with another, but it is not a good system to follow, as weeds are becoming so troublesome. Land is prepared for grain by one or two plowings the previous fall, and the seed-bed made in the spring. For pulverizing the soil in spring, in order to get two or three inches of fine surface, the spring-tooth cultivator is used more than any other implement, with the harrows as a valuable follower. Three-horse teams are used to a considerable extent, but no four-horse teams are in use.

J. HUGH MCKENNEY, Elgin Co., Ont.—Oats, American Banner is the most popular; in fact, almost the only variety grown both on heavy and light soils. Spring wheat has not, to my knowledge, been grown in this locality in recent years. Peas promise to be a more extensive crop, as the weevil has apparently disappeared; Golden Vine is the variety most commonly sown, but Prussian Blue gives excellent results on poor soils, but are not, however, preferred for very rich land, being inclined to grow too much to straw. Corn, Long-fellow and Smutnose are the favorite husking varieties; for the silo, Leaming and White Cap Yellow Dent are preferred. None of these will grow to perfection on a heavy soil, but the last named will do well on comparatively poor land. Potatoes: Early Rose and Early Ohio for early crop; Empire State for main crop. A very rich, sandy soil will give the best results. Barley: Mandscheuri is practically the only kind grown, and is mostly confined to the heavy soils. It is frequently sown with oats for a mixed crop on light lands, and has proven very satisfactory. Roots are not largely grown, principally on account of the labor involved, farmers preferring to give the extra acreage and attention to the corn crop. Regarding mangels, the varieties most in favor are Mammoth Long Red and Giant Yellow Intermediate. Turnips are grown to a limited extent, the Purple-top Swedes being the most popular. The proportion of the total grain crop usually seeded down varies somewhat, but many