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plants. It is also a medium through which disease is transmitted to garden lettuce, as it has been much infested with a fungus called Septoria consumitis, which occurs on the leaves, making them spotted at first, and finally killing them. But the disease does not seem capable of destroying the entire plant so as to render it incapable of producing seed.

Alsike Clover.

This excellent clover is growing in popularity over the whole of the temperate portions of this continent. This is owing largely to its excellence for winter feeding, to its hardihood, and to its durability. There are some conditions where it will always be more advantageous to grow the common red and mammoth clovers, and other conditions where it will be the proper thing to grow alsike clover. It is important that these conditions shall be well understood.

On ordinary soils the common red and mammoth clovers will grow everywhere, except where the climate is too warm or too cold. But these clovers will not thrive where the subsoils are wet. Which of the two should be grown will depend, to some extent, on the object sought. For plowing under the mammoth is usually considered the best, and on soils low in fertility it should also be preferred. But where fine hay is wanted, and where pasture is a chief object, then common red should be grown.

Alsike clover is well adapted to heavier soils, or those which have a fair amount of clay in them. It will also grow well on humus soils, underlaid with clay, and capable of retaining much moisture. Alsike clover will live and flourish in soils where water lies on the surface for a few days in the spring. But it is not well adapted to light, sandy soils. It will grow, however, in sandy soils possessed of a fair amount of fertility, but only when they are underland with clay, for sandy subsoils do not retain a sufficiency of moisture. The alsike on these, therefore, will grow short and spindling.

Alsike clover matures at the same time as Timothy is also adapted to the timothy. same kind of soils, hence the two grow admirably together. About three pounds of abike and four to six pounds of timothy per acre will make an excellent quality of hay. The two will grow so thickly that both will be fine in character, hence they make an excellent quality of hay. It is good for horses, for milch cows, and also for sheep and lambs. Such hay is also much relished by these animals when it is properly cured. And when once a seeding is obtained on lowlying lands, both the timothy and the clover will retain their hold upon the soil for several years.

When alsike clover is raised for seed, it should not be sown with timothy, nor should it be sown on soils too low or too rich. It should not be sown with timothy, as the seeds of the timothy and those of the clover are so nearly alike in size that they cannot be separated when being cleaned. It should not be sown on soils too rich, for the reason that it would grow too rank and strong for seed production. The energies of the plant would be concerned in producing bulky growth rather than in producing seed. On the other hand, heavy crops of seed will not be obtained from soils that are too light of texture. Good crops of seed will be obtained in an average season from heavy clays, and excellent crops may be grown on clay loams.

A good grop of alsike should produce from wo to three bushels of seed per acre. In some instances four bushels may be secured. The best crop of seed is, of course, the first one. It is, perhaps, questionable as to whether a second crop of seed should be sought until the land which produced it has been sown again in the natural rotation. When a forage or fodder plant produces seed, it so exhausts its powers that it does not seem again capable of repeating the act of seed production satisfactorily.

It is not a good plan to pasture alsike clover when the seed is wanted. On the best seedproducing soils it would check the growth of the plants too much, and a diminished product in the seed would be the outcome. On rich and low soils pasturing would probably he helpful, providing it were uniform. But it would be impossible to secure uniformity in pasturing, as on some parts of the field the clover would be eaten closely, and on other portions of the same it would, probably, not be eaten at all. Another way would be to run the mower over the clover when it was but a few inches high ; but even this plan has its hazards, for, when dry weather follows immediately, the crop that has been thus dealt with does not get large enough to yield a maximum crop of seed. The best plan, therefore, is to raise seed from crops grown on suitable soils, and without pasturing or cutting with the mower.

Alsike clover is likely to grow more and more in favor, as it has many good qualities about it. It is very hardy. It will grow further to the north than common red clover can be grown. It will also grow on lands too moist to produce the common red clover in good form. It is a rich producer of valuable seed. It makes most excellent fodder, owing to its fine habit of growth, and also owing to its valuable nutritive qualities. And it is one of the best honey-producing plants that is grown A section of country that is much devoted to growing alsike clover is also an excellent country for producing honey. Wherever this plant has obtained a footing it has not been discarded, and it is being more and more distributed as time goes on.

Sorghum for Syrup.

Years ago the cultivation of sorghum was introduced into Ontario. At that time a large portion of the land relatively, in several of the states of the Union, was being devoted to the growth of sorghum. Much was being written at the time with reference to the value of the crop. But, notwithstanding, its growth never took a firm hold upon the mind of the farmers. It seems strange that it should be so, for, at the present time, sorghum is being grown at a handsome profit in some sections further north than southern Ontario, and with a season that is shorter than ours. The varieties that were introduced at that time were not equal to those now grown, and this, probably, is one reason why the growth of sorghum has made so little progress in our country.

It may be to our advantage to look into this question again. We have sound reasons for stating that we have large sections of country well adapted to the growth of sorghum. It is not much more difficult to grow than corn. It does not require any more skill to grow it, and our seasons are amply long enough The average yield of the cane per acre should not be less than twelve tors, where the crop has been given sufficient care. Each ton of the

varieties should yield not less than fourteen gallons. The price of the syrup will vary, but syrup of the first quality should be worth from 40c. to 50c. per gallon. There should, therefore, be a fair profit from growing sorghum, for the seed, over and above the syrup obtained, is worth considerable.

In preparing the ground for sorghum or amber sugar cane, the same conditions apply as in growing corn. Land that is well adapted to growing corn will also be well adapted to growing sorghum. The preparation of the ground for corn will also be the preparation that is suitable for sorghum. And the proper time for planting corn is also the proper time for planting sorghum.

Sorghum raised for syrup is usually planted in hills. It is important that ample sunlight he admitted, first, to promote growth, and, second, to promote what may be termed saccharification of the plants. The more sunlight admitted, the richer the juice of the cane : and the richer the juice, the more the syrup that will be obtained from it. The hills are grown 31/2 feet apart. The seeds may be planted in a hill, and when the sorghum is four inches high it may be thinned, so that not more than six or seven stalks of the cane are left in the hill.

The sorghum grows very slowly at the first ; hence there is more trouble in cleaning it than in cleaning corn. It takes more hand work when it is young. But soon it will grow faster, and after it gets a foot high, or higher, it grows very fast, and reaches a great height. The cultivation should commence when the plants are very young, and it should be persevered in until the crop is too far advanced to admit of cultivating it any longer.

The crop is ripe when the seed heads turn brown; that is to say, it is ready for being cut. The cane should not be ground for at least twenty-four to forty-eight hours after it has been cut. If stripped of the leaves, it may be piled up in layers which cross one another, and in this state it will keep for some time, until it can be ground. The cane should, if possible, be cut before it is struck by frost. If it should happen to freeze, it should then be worked up quickly, and the more rapidly the work can be done the less will be the loss. The seed also should be removed from the canes before they are cut.

There seems to be no good reason why this industry also should not be added to the industries which we now have. If our neighbors in the United States can make money by growing sorghum to be made into syrup on the forty fourth parallel, why may not we do the same on the forty-third parallel? The question is at least of sufficient importance to merit investigation.

Nitrogenous Fertilizers.

Nitrogenous fertilizers are the most important by far in relation to plant growth, and they are by far the most costly when we buy them. It is important, therefore, that we get them, so far as we possibly can, through the cheapest sources of supply. The cheapest medium through which we can obtain them is that of leguminous plants, which have the strange power of getting their supplies of nitrogen from the air, and depositing the same in the soil.

But we cannot always get nitrogen in that way. We cannot always grow leguminous plants when we want to, nor can we grow them readily in all climates We get much nitrogen in farmyard manures, but these are cane grown from one of the most approved not always available. We are therefore shut

up to the necessity oftentimes of seeking them from other sources.

There are many sources from which they may be obtained in a commercial way. But of these, three are more important than the others. We refer to nitrate of soda, sulphate of ammonia, and the waste of slaughter houses. In the form mentioned last, nitregen is seldom purchased alone. It is more commonly found in conjunction with phosphoric acid, and oftentimes with more or less potash. When purchased as nitrate of soda or sulphate of ammonia, the fertilizer is practically purely nitrogenous in character.

Nitrogenous fertilizers are chiefly concerned in making growth in the plant at the different periods of its life. When, therefore, crops are abundantly stimulated with nitrogenous fertilizers, they push up rapidly and make a strong growth. It is evident, therefore, that if there is just enough nitrogen in the soil in a normal season to make an average growth of straw, the best returns in grain may be expected from the plant. But, if there is an excess of nitrogen, there will be an undue development of straw, followed by a light yield of grain. If, on the other hand, the nitrogen in the soil is insufficient, the growth of the straw will also be delicient.

Purely nitrogenous fertilizers diffuse very readily in the soil when it is moist. Great care is therefore necessary when applying them, for if they are applied in a wet time and before the roots of the plants are sufficiently extended to take them up in the soil they will soon be carried downward into the subsoil, and will pass away into the drainage water. And, if applied in a dry time, they lie inert or dormant in the soil ; hence they may be partially inaccessible to the crops that may be growing upon the land until after they have matured. If the harvesting of these is followed by any considerable rainfall, the fertilizers which lay dormant during the dry weather, and practically inert, are carried down into the subsoil before plants again grow upon the land.

It is important, therefore, that when nitrogenous fertilizers are applied, the plants on which they are strewn shall have already made a good start. We should, therefore, avoid applying them before, a crop is sown. It will always be in order, however, to apply them on grass lands in moist weather, for the roots of the grass so fill the soil that the fertilizers will be taken up and utilized as they go downward, unless they are sown when vegetation is at a standstill.

It will be apparent also that these fertilizers can best be applied to cereals when they are young, because, in the first place, they will aid in securing vigorous growth at an early stage in the life of the plant, which is important; in the second, the weather is then usually moist, so that they are readily distributed in the soil; and, in the third, when sown late upon the crops, they may produce excessive growth, and therefore hinder the filling of the car.

It will be forther apparent that it will not be wise policy to sow them in the autumn. When sown in the actumn, even on a crop, it is probable that only a portion of the fertilizer will have been taken up by the crop. Then follows a period with but little growth, while the winter is coming, on, and another similar period when the winter is going away, and during these periods much moisture is going downward in the soil; hence it carries the unused increment of the fertilizer along with it. It is greatly important, therefore, that when nitrogenous fertilizers are used, they be