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Agriculture.

THE VALUE OF ALFALFA AS A FORAGE, PASTURE AND STORAGE CROP.

Directions for Growing the Crop—Fertilizers and Soils—It Must be Cut Often—How to Feed It.

II.

Cor. of The Progressive Farmer.

That it is easy to make mistakes in growing alfalfa has been abundantly proved by the experience of American farmers, many of whom, after the first trial have concluded that it is not what it is recommended to be. This crop, however, is making its way as people learn how to grow it.

ALFALFA SOILS.

A deep rich sandy or gravelly loam is probably the best soil for alfalfa, but it will do well on a variety of soils.

A hardpan subsoil may prove an obstacle to its growth but not every clay hardpan has prevented its success, as the writer has found by experience.

In heavy clay soils which become water soaked during long periods of rainy weather it will not do well unless either the natural drainage is good or the soil is tile drained; nor will it succeed on swampy lands or on any low lying lands where the water table is close to the surface.

Whether the soil is sand or gravel, clay or a mixture of various classes of soils, it is best that it be well drained and fairly rich. Alfalfa will not spring up quickly on poor soil and fight its way with weeds and grasses as the cowpea will. Indeed, it is a tender plant during the first year of its existence and should receive good care.

SEEDING AND SOIL PREPARATION.

The method of seeding and preparation of the soil will depend upon whether the crop is sowed in the spring or fall. Northern growers sow broadcast in the spring but Southern growers prefer fall sowing in rows or drills.

It is very doubtful in the mind of the writer whether it is wise to sow in drills in any climate. Certainly it is broadcasted in the great alfalfa regions of the world and the only argument in favor of sowing in drills is that it can be hoed and cultivated and weeds and grasses kept down. This a good argument provided there is no other way to accomplish the same result. But to sow alfalfa in drills and then hoe and cultivate it the first year is an expensive process and if the hoeing and cultivating are not kept up during the following years, weeds and grasses will fill the unoccupied space and gradually choke it.

The better way is to sow the seed broadcast and thick enough so that the ground will be fully occupied, which means not less than twenty pounds of seed per acre nor more than thirty. Then if the soil is properly fertilized and the crop cut at the right times the alfalfa will keep ahead of the weeds.

Broadcast sowing in the spring is not to be recommended for the South because the crab grass will probably choke it.

Assuming, then, that fall sowing is practiced it is well to prepare for the crop ahead of time. If possible, give a dressing of 10 to 12 two-horse loads of stable manure per acre in May and sow to cowpeas. The peas should be sowed in rows and cultivated so that the land will be free from weeds and grass. In August or early September the peas, vines included, should be harvested or pastured closely and the ground plowed and sowed to alfalfa. If the soil is lumpy it should be worked till it is pulverized finely then sown broadcast and harrowed in with a spike tooth or smoothing harrow.

FERTILIZATION.

Alfalfa responds to applications of potash, phosphoric acid and lime and is also benefited by nitrogenous fertilizers during the early stages of its growth.

A good fertilization at the time of sowing would be the following amounts per acre:

Sulphate of Potash 100 lbs.
Acid Phosphate 500 lbs.
Cotton-seed meal 200 lbs.

If the soil is lacking in lime, use a ton per acre of air-slacked lime spread broadcast.

It is of the utmost importance that alfalfa should develop root tubercles for the purpose of gathering nitrogen from the air, yet on many soils where it is grown for the first time not a trace of a tubercle can be found and the plant languishes unless fertilized with nitrogenous fertilizers.

A good dressing of stable manure helps in the formation of root tubercles and a little "mother earth" from an old alfalfa field which is known to contain tubercle forming bacteria, will assist in the same manner. If neither stable manure nor "mother earth" are used nor any nitrogenous fertilizers, the crop will not do well unless the soil is naturally rich. It may take some patience and perhaps more than one attempt before success is attained, but it is worth several attempts if thereby the crop may be grown successfully.

Fertilization with potash and phosphoric acid should be continued every year, but nitrogenous fertilizers may be discontinued as soon as the plant demonstrates that it is gathering nitrogen from the air and this is practically demonstrated when the tubercles are found on the roots.

THE AFTER-CARE OF THE CROP.

To get a good stand of alfalfa does not assure one of continued success. The time of cutting is of considerable importance with reference to the permanent health of the plant.

Many farmers wait too long before cutting. One North Carolinian tells me that he cuts his crop three times a year, but complains that it does not do well. If he cut it five times a year it would do better.

It is a good rule to cut when one-tenth of the heads are in bloom. Another rule is to cut every 35 or 40 days from April to October.

If a severe drought comes and the crop blooms while still small, cut it. Cut whether large or small when it commences to bloom.

If the cutting is too long delayed the leaves turn to a yellowish green color and the general appearance is unhealthy. If the weather is too rainy to save a crop when it should be cut and if the farmer has no silo in which to save it, it is better to cut it and use it as a fertilizer on adjacent fields than to let it get old and go to seed.

After the plants are two or three years old they are benefited by a good harrowing in the spring and even after each cutting.

Alfalfa should not be pastured the first year of its growth and some writers say it should not be pastured at all, but that is going too far. It is one of the best of all pasture plants if fields are arranged so that stock can be turned from one field to another every week or oftener and are allowed to come back to the same field every fourth or fifth week. As regard danger of bloat to cattle and sheep that are grazed on it, it may be said that alfalfa like many other crops is somewhat dangerous if not understood, yet I have seen sheep graze on it all summer without any loss. When the animal is first turned on alfalfa he should have a full stomach and thus have room for very little. Let this be done several successive days, leaving the animal a little longer each day, and he will soon get accustomed to it and eat it without danger. Bloat will occur if a hungry animal is turned on green alfalfa, and particularly if the plants are wet.

With horses and hogs, however, there is no danger from it either wet or dry, and there is nothing they will eat with greater avidity.

It is stated by some writers that the presence of much iron in the soil is fatal to alfalfa, but the writer knows nothing about this from experience.

A. D. McNAIR,
Supt. Experimental Farm.
Southern Pines, N. C.

The less a farmer knows the more land it takes for him to make a living on. And there is not enough land for an ignorant farmer to make more than a living on.—Brewer's Curfew.

CURING PEA VINE HAY.

Cor. of The Progressive Farmer.

The cow pea vine is worth as much as the cotton plant to the country, perhaps more, for it grows much farther north and thrives on vast regions in which cotton will not grow at all. The cowpea has a three-fold value. Greatest of all is that it increases the fertility of every acre on which it is grown and increases it faster and more economically than any other crop as easily, surely and widely grown. Then the pea itself is of a high value as stock food, nor do men with sound appetites despise it. Third as a forage the pea vine hay is beyond comparison the best food that we have ever used. Shredded as we shred it its actual value to us is fully twice that of average timothy hay. Of course a chemical analysis does not show that difference, though I believe it shows a considerable difference, in favor of pea vine hay. In estimating its value I consider the great relish of all the animals for it, their superior condition and working capacity, and the lessened ration of grain that will keep them up while fed on it.

The value of pea vine hay as a forage depends very largely upon its proper curing; probably more than any other forage whatsoever. The curing of it is the simplest, easiest thing in the world. I don't know how I came to adopt it unless it was owing to my belief that the best things are the simplest things, the best ways the simplest ways. Nevertheless this mode of curing is of incalculable value to us. For it not only cures the hay perfectly but there is no worry, no element of uncertainty as in all other modes.

We cut the pea vines with a mower drawn by two horses. One machine well handled will cut nearly ten acres a day. A cutting blade could, of course, be used for a small acreage. Right behind our mower follows a force putting up stack poles. Any ten foot pole will answer as it has to stand only a short while. The pole set we nail a strip of wood—readily riven from pine or any wood that splits easily—about four feet long, placing it about one foot above the ground, and immediately above another similar strip nailed cross-wise the first. These strips serve to keep the bottom of the stack of vines from resting on the ground and rotting in wet seasons. Brush will answer as well or even better though it is not practicable where a great many stack poles are to be protected. We put up about 2,000 stacks every fall. We have cured vines without any rotting at all when no protection at all was used at the bottom of the stack.

Well, the stack poles planted we follow right behind the mower and make stacks of the vines as high as the poles and about four feet in diameter, sloping and smoothing the stacks at the top so as to shed water.

No more attention or thought need be given the stacks till the vines are sufficiently cured to be threshed and shredded. And a beautiful and most excellent lot of forage you will have, too. All cured green and sweet. It tastes sweet almost like sugar cane. The shredding should be done as soon after the vines are cured as practicable, as the longer the stacks stand the deeper the weather affects the vines. Besides bad weather is apt to come later in the fall and hinder the shredding.

We have found above mode to work perfectly even in seasons like 1901, the wettest ever known here. My neighbors who let their vines lay to cure or even to wilt had them badly damaged. We went right ahead reaping and stacking every hour that the standing vines were not actually wet with rain and lost not an armful of forage.

Having thus to our complete satisfaction settled the vexatious matter of curing the hay we plant one hundred acres of peas annually. The result is that we have an abundance of excellent forage to use and much to sell. Our work animals are the wonder and admiration of the neighborhood. Though their work is the heaviest in the county, our two hundred

acres of strawberries requiring at least eight plowings from May to September to keep them perfectly clean. I have calculated that one horse is giving these eight plowings would have to travel nearly 5,000 miles.

The stubble fields from which the vines are cut are plowed under as soon as practicable, and in October or November plowed again and prepared for strawberries. When the strawberries come off the fields is again drilled to peas. By this rotation our land, the poorest in the county, it was said when we started, has become about the best. The peas fits the soil for any crop, but they seem just the thing to put it in perfect tilth for strawberries. Our fields are rich in humus, just the condition that the strawberry revels in, flourishing like the green bay tree. And through the pea has come the salvation of our land and of ourselves.

O. W. BLACKNALL.

Vance Co., N. C.

PROGRESS OF ALFALFA GROWING IN KANSAS.

We have just received from Secretary F. D. Coburn of the Kansas Board of Agriculture, the following note which will be read with interest in connection with Mr. McNair's articles:

"Alfalfa has been officially recognized in Kansas for an even dozen years, and during that time its popularity has steadily increased. Prior to 1890 it was not deemed of sufficient importance to be taken notice of in the statistics of the State Board of Agriculture. Now, and for the first time, it has a larger acreage than any other tame grass, its area being over 458,000 acres, according to the sworn returns of assessors now being compiled and tabulated by Secretary F. D. Coburn.

"Timothy has been alfalfa's leading competitor in area until this year, when the returns proclaim its field is 138,657 acres or 30 per cent smaller than that devoted to alfalfa. It is an interesting fact also that as early as the fourth year of alfalfa's statistical record (1894) its area exceeded by 24,000 acres that of the clovers for the same year, and each canvass since has shown an increased difference in favor of the former. Indeed statistics indicate that for Kansas, alfalfa is being found superior, by those who have had experience with them, to timothy or clover. It not only is a perennial legume, of unusual powers of resistance to protracted dry weather, as against timothy and the biennial clovers of less fortitude, but annually yields from two to three times as much feed equally or more nutritious, and is a remarkable soil renovator besides. These facts in large measure account for the marvelous increase in appreciation and sowing of alfalfa, as disclosed by the figures. In 1891, of the tame grasses, alfalfa ranked fifth in area, with 34,384 acres; in 1902, first, with 458,493 acres, a gain of 424,109 acres, or 12.33 per cent, and an increase over 1901 of 139,351 acres, or 43.66 per cent."

THE PEANUT TRUST.

Looks as if it would Try to Control the World's Trade.

More representatives of the expected peanut trust are here, and some have left for Petersburg, Franklin and other points to examine into the cleaners' plants before the consolidation.

Apparently their plans are blocked because the cleaners have not secured control of this year's crop, but a desperate fight will be made to control the next crop. There are seventeen plants in the State which the combine will probably take in and these handle a large part of the trade of the world. The consolidation will displace about two-thirds of the large travelling force of salesmen.

The organization of the trust means it will control the trade of the world, but this year it fears the independent cleaning plants, as they have a goodly share of this year's product to work on, and would be dangerous rivals.—Norfolk Cor. News and Observer.

FALL SEEDING OF GRASSES AND CLOVERS.

Cor. of The Progressive Farmer.

In North Carolina the best months for sowing grass and clover seeds are September and October. These are also the best months for seeding vetches, oats, and rye. Wheat should not be sown until after a hard frost, in order to escape the Hessian fly. Oats should be soaked for ten minutes before sowing in a solution of one-half pound of formalin in 25 gallons of water. This will prevent loss by smut during the following spring.

During these fall months every unoccupied field should be seeded to crimson clover or one of the vetches. Crimson clover, especially the native grown seed in hull, if sown upon a Bermuda or crab grass sod or among pea vines without covering in, will give a certain catch, and every dollar spent in the fall for the seed should return at least five in the spring. The clover will furnish good grazing from Christmas until April, then if stock is taken off the clover will make two tons per acre of hay by May 10th. The stubble and roots will enrich the soil for the following crop of corn, cotton or tobacco. Tobacco growers in particular are warned that the large amount of potash and nitrates left in the soil by this crop, unless the land is protected by a growing crop, will be largely washed away by spring.

Farmers who intend to sow clover seeds this fall are advised to procure their seeds, or at least samples thereof, as soon as possible, and have them tested for quality at the Department of Agriculture before sowing. The clover, lucerne and grass seeds sold in North Carolina are often of very poor quality, even though sold at a high price. Clover and lucerne are apt to be infested by the seeds of a destructive parasite—*cuscuta trifolii*, the dodder or love vine, which soon ruins the meadow. Farmers should take no chances, but learn what they propose to sow before sowing it.

GERALD McCARTHY,
Botanist N. C. Dep't. of Agr.

THE OAT-CHESS THEORY AGAIN.

Cor. of The Progressive Farmer.

I have read so much in your valuable paper in regard to Mr. Alexander's views on oats producing chess that I desire to show my faith in what I believe by my works. Prof. Massey seems to know that Mr. Alexander is not correct in his views and that life is too short to argue people who imagine they know it all. He says they are superstitious and believe in fables.

Now, I believe that chess is produced by oats being hurt in the winter. The fact that chess does not spread and grow wild as other grasses, shows that it owes its existence to the oat seed, for it is never seen unless oats are dropped by stock on the highways and hedges or where oat seed is in wheat, or where oats are sown in fall—or come up volunteer. Some years back I had a field of oats sowed in fall, but the next spring three-fourths of the crop was chess. I turned the oats and chess that lay on the field with two-horse plow late in July and first of August, there was three times as much good well-developed chess grains on the land as there were oats. But no chess ever came up and I had the best oats I ever raised and not one stalk of chess. A boy that saw me turn this chess under tells it now, that the chess came up and made the best oats he ever saw. Now those that only believe that Mr. Alexander is wrong are like that boy—they just don't know.

J. H. TROLLINGER.
Catawba Co., N. C.

At his Pou farm near here Mr. J. W. Stephenson is making arrangements for raising and fattening more cattle. Recently he built a barn with forty stalls connected. He has increased the acreage of his pastures. The two machines bought this season, a corn binder and a corn husker and shredder, will add greatly to his outfit. The binder is now in daily use. It cuts the corn and binds it in bundles with perfect regularity.—Smithfield Herald.

Poultry and Bees.

HOW TO MAKE BEES PAY.

II.

Cor. of The Progressive Farmer.

One of the most important steps to make a success of the honey business is to have a good strain of bees. While there are a great many different kinds (among which are the Italian, Albino, Black, Carnolian, Cyprian, East Indian, Egyptian, Holy Land, etc.), none are equal to the Italian in many respects. They are recognized the world over as superior to all others as honey-gatherers, and for this reason, if none other, they are used and bred exclusively by those who run large, up-to-date apiaries.

THE ITALIAN BEES.

Among the different strains of Italians are those known as five-banded, three-banded, golden and leather-colored. I have learned from experience, however, that the color has little to do with the qualities of the bee. I have introduced at different times queens from all four of the strains just mentioned, and find the leather-colored queens much superior in every respect to the others. Some breeders seem to go in for color more than anything else. In their ads. they tell you what beautiful bees they are. That's all very nice in a way, but what the business man wants is beautiful honey, not beautiful bees alone. No, the color, as a rule, does not govern the working qualities of the bee.

The Italians came originally from Italy, as their name implies, and fine breeders are still imported from that country. As before stated, the Italian is superior to our common native or black bee in many respects.

LENGTH OF TONGUE AND ITS ADVANTAGES.

First, their tongue is much longer. While that of the common bee measures only 16-100 of an inch, that of the Italian runs from 20-100 to 23-100, and some have measured 24-100 of an inch. This greater length of tongue enables the Italian to gather honey from flowers that it is impossible for the common bee to reach, and for this reason, in sections where there are few short-tubed flowers, the Italians often fill their boxes to overflowing, while the common bees starve. The extra tongue-reach enables them to gather honey plentifully from crimson clover, while the common bee can do little or nothing, owing to the depth of the tube. It is the same with all other flowers having deep tubes.

Another thing in favor of the Italian is that they keep their boxes clear of the moth and web-worm, that play such havoc with the common bees. They are also more gentle and much easier handled.

It is almost impossible to keep the Italian pure in most sections of the country. Owing to the great number of common bees they soon become mixed; the cross is known as a hybrid; while not as gentle as either the Italian or common bee, or rather the brown variety of the common bee, is nevertheless, recognized as an equal of the Italian in every other respect.

TRANSFERRING BEES.

Now, if you have the common black or brown bees in the ordinary box hive, and wish to Italianize them, first it is necessary that you transfer them to a patent box, or one with movable frames. For the benefit of those who have had no experience in this respect, I will tell you how it may be done (or rather the way I proceed—some have one way and other another). Take the box to be transferred to some secluded spot, so you will not be troubled with robber bees. Have a small table, or smooth board convenient. First smoke the bees well; after about five minutes remove the top, then with a chisel pry off one of the side boards of the box. Keep it in a perpendicular position so the combs will not fall to one side. With a long knife cut the combs from the sides of the box.

Select a long smooth one; lay it on the table or board mentioned; then take a frame from your patent box,

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