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THE SEEDING OF ALFALFA

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Alfalfa is one of the most important forage crops that the Missouri farmer is growing today. Its wide adaptability for feeding to all classes of farm animals, its high feeding value, and its beneficial effect upon the soil make it a very desirable crop to grow. The idea that it cannot be grown successfully in Missouri is largely a matter of not understanding the requirements of the plant, and as these become better understood there is no doubt but it will be grown to a greater or less degree in practically every section of the state. In the richer sections it will be grown on the uplands, and in the less fertile sections it will be grown in the fertile valleys and bottoms.

In 1907 the Experiment Station, co-operating with farmers throughout the state, started a number of alfalfa experiments with the idea of determining the best methods of securing a stand. Some very interesting results have been obtained and in many cases the problem of securing a stand has been practically solved. From the results of these experiments the following recommendations for seeding alfalfa may be given:

SOIL.

Alfalfa thrives best on a deep rich, loose and well drained soil. It takes good land to grow it without considerable care. Well drained creek and river bottoms as well as all well drained, rich uplands, especially those containing plenty of lime, grow it readily where properly handled. For the small farmer who wishes to grow only a few acres, an old feed lot will usually be found to be an ideal place for seeding. For average to thin lands, much care is necessary to secure a stand and to keep the grasses and weeds from taking it. On such lands it is useless to sow alfalfa without the liberal use of stable manure but where this is applied at the rate of 12 to 15 tons per acre to well drained soil, it can usually be grown. It is practically useless

to attempt to grow alfalfa on the flat prairie soils which are poorly drained.

INOCULATION.

Inoculation on all uplands that have never grown alfalfa, is generally of much benefit and usually necessary to success. This is especially true on regions where sweet clover does not grow. Where sweet clover grows commonly, the land is usually inoculated for alfalfa since this plant has the same bacteria on its roots as alfalfa. Bottom lands which overflow never need inoculating. Inoculation is best accomplished by scattering two or three hundred pounds per acre of soil from a field where alfalfa has been grown successfully and harrowing it in immediately. This soil should be applied directly ahead of the harrow and not allowed to lie exposed to the sun light for any length of time since light will kill the bacteria. Soil for inoculation may also be dried away from the sun, sifted and drilled in with an ordinary fertilizer grain drill. Where soil cannot be readily obtained from an old alfalfa field, some taken from roadsides where sweet clover is growing will answer the purpose quite as well. Artificial cultures of these bacteria are now made which the farmer may secure, sprinkle over his seed and inoculate them in this manner. This method of inoculation is still in the experimental stage however, and is not to be recommended except in an experimental way.

THE USE OF LIME.

On a few soils in the state which have a tendency to sourness, the use of lime is beneficial in securing a stand of alfalfa and in some cases is necessary to success. To begin with, however, one should use lime experimentally and if possible learn to grow alfalfa on land that does not need lime. Where lime is used it should be applied at the rate of from three to four thousand pounds per acre in any convenient form except that from gas works which contains injurious compounds. Where only a small area is to be limed the ordinary barrel lime allowed to air slake or water slaked to a powder may be used. The ground limestone is the cheapest form where large amounts are to be applied. This is best applied by means of a lime distributor after plowing and before working the ground down so that the preparation of the seedbed may work the lime into the soil. For a small area however, it will be more feasible to scatter the lime from a wagon box with a shovel by hand. The creek and river bottom soils and most of the fertile uplands in Missouri need no lime.

SEEDING.

Alfalfa may be sown in the spring on the very fertile lands but for average to thin lands, fall or late summer sowing is much better.

From the middle of August to the middle of September is the best time for Central and North Missouri, but in the extreme southern part the seeding may frequently be done as late as the first of October. Much depends upon the weather during August as to what time it should be sown. Frequently the first of August is better than later sowing and very good returns have been gotten by sowing in July.

Clean seed of strong vitality and free from obnoxious weeds should be used and sown at the rate of fifteen to twenty pounds per acre. Seed containing dodder should always be avoided. Twenty pounds is usually to be recommended unless the seed is very good and the seed bed in exceptionally good condition. The seed is best broadcasted and lightly harrowed in, covering to a depth of from one-fourth to one-half inch. A more even stand will be secured if one-half the seed is sown one way and the other half across this seeding. The seed may also be drilled in with the seed attachment of a grain drill allowing the hoes to cover it lightly.

On very fertile lands, alfalfa is sometimes seeded in the spring with good success, but on the thinner soils plants seeded in the spring are usually overcome by weeds and grass before they get set. Where it is sown in the spring it may be sown alone or with a light seeding of oats or barley for a nurse crop. It is sometimes sown on wheat in the spring in much the same manner as clover but this should be done only on the very best lands such as the bottom lands along the Missouri and Mississippi rivers. In fall sowing there is some danger of the plants being burned out if dry weather follows the seeding and if near a meadow the grasshoppers frequently destroy the young plants, but for ordinary upland the chances for a successful stand are much better than where spring sowing is practiced.

The seed bed must be well prepared. Young alfalfa plants are very tender and the conditions must be favorable to start them off well. For spring sowing, the ground should be plowed in the fall so as to allow it to be well settled below before seeding. In the spring, the ground should be worked down and a well pulverized seed bed prepared. For fall sowing, the ground should be plowed early preferably in June or July, plowing deep and working down at once. It should be worked at frequent intervals until time to sow to kill all growth of grass and weeds and conserve moisture. If late plowing is necessary the ground should be well rolled to compact it below and bring the loose soil in close contact with the bottom of the furrow. Where manure is to be used it is best applied with a spreader at the rate of ten to fifteen tons per acre and plowed under early. Cowpeas is an excellent crop to precede alfalfa, as they leave the ground in good physical condition and in fine shape for fall seeding. Where alfalfa follows this crop the manure should be plowed under before the

peas as that will give it a chance to be more thoroughly worked into the soil than if applied just before seeding the alfalfa. An early maturing variety of cowpea such as the New Era, if sown early, will mature and be ready to cut for hay by the middle of August. After the peas are removed, a good seedbed can be prepared by thoroughly disking and harrowing the ground, which will give better results than plowing so late.

HARVESTING.

One of the difficulties of handling alfalfa in Missouri is found in curing the hay, especially the first crop when the weather is not suited to hay making. A cutting of a ton or a ton and a half per acre cures very slowly when the stems are so full of water and the weather moist. In the dry climate of the west, the hay cures so quickly that it goes into the stack almost as green as when first cut, but with the moist atmosphere and frequent rains of Missouri it is practically impossible to harvest every crop without getting some of it badly bleached. The first crop is sometimes made into silage or pastured off with hogs. The best methods of curing alfalfa in this state depend largely upon the weather but it rarely happens that it can be properly cured in the swath. When allowed to lie in the swath the hay burns readily and the leaves drop off so much in raking that much of the feeding value is lost. It is usually better, therefore, to rake into light windrows when only partially cured and allow it to finish curing in the windrow or in small shocks. Hay caps are frequently used for covering the shocks and protecting them from the rain. Where cured in the windrow the side delivery rake is of great value in turning the hay and facilitating drying.

The time to cut alfalfa may be determined by noting when the plants begin to send out small shoots near the ground. It should not be cut before these appear nor stand any length of time thereafter. These shoots usually appear with the first blooms, hence it is frequently recommended to cut when the first blooms appear.

CULTIVATION.

Foxtail, crabgrass and bluegrass are the worst enemies of alfalfa on most lands and especially on the thinner ones. The cultivation of the alfalfa with a disk or springtooth harrow followed by a drag harrow is usually sufficient to control these grasses. After the first year there is practically no danger of injuring the alfalfa by such cultivation, even though it be quite thorough. The cultivation should be given after the second and third cuttings where possible rather than the first.