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FARM DEPARTMENT.

H. M. COTTRELL, M. S., Agriculturist.
D. H. OTIS, M. S., Assistant in Dairying.
J. G. HANEY, B. S., Assistant in Field and Feeding Experiments.

ALFALFA IN EASTERN KANSAS.

WE have been investigating the growth of alfalfa in eastern Kansas for more than two years. We have held as many as five farmers' institutes in a single county without seeing one field of alfalfa. We met a farmer who had lived thirty years in Labette county who had never seen an alfalfa plant growing, and there is comparatively little alfalfa grown in the eastern third of the state.

As alfalfa is absolutely essential to the cheapest production of beef, pork, and milk, and the rapid growth of young farm animals, it is evident that farmers without it are at a great disadvantage. Our work in fattening hogs shows its value. One lot of hogs were fed all the grain they would eat, and another lot all the grain and all the alfalfa hay they would eat. The hogs having the alfalfa hay ate more grain and gained more pounds of pork for each bushel of grain consumed, showing a gain of 868 pounds of pork per ton of alfalfa hay. Hogs on alfalfa pasture showed a gain of 776 pounds per acre of pasture.

We find that alfalfa hay and corn or Kafir-corn makes the cheapest combination of feeds for milk production, securing a good yield of milk and of butter-fat at the least cost, with butter of good quality in

regard to firmness. With skim-milk, Kafir-corn, grain and alfalfa hay we have been able to make calves gain nearly two pounds per day from birth to six months of age, a gain equal to that made by calves sucking their dams.

This Station has not had sufficient money to test the value of alfalfa for fattening steers. Feeders report that, in fattening steers with corn, when hay, fodder or sorghum is used for roughness, the steers gain from one and one-half to two pounds per day each. When alfalfa hay is the rough feed, fattening steers gain three and one-half to five pounds per day each. Alfalfa is our best soil enricher, bringing up plant-food to the surface soil from greater depths than any other crop plant grown in Kansas. It seems imperative, then, that eastern Kansas farmers should grow alfalfa, if possible, as they need it both for feed and for fertilizer.

Most trials of alfalfa in eastern Kansas have been failures, but we have found alfalfa grown successfully under almost every condition of soil to be found in the eastern part of the state, and we believe that a large portion of eastern Kansas, from Nebraska to Indian territory, is a natural alfalfa country. Alfalfa will not grow on wet land nor where rock comes near the surface. It is easiest grown where the subsoil is rich and porous, but good crops have been harvested many years in succession on land underlaid with as tough and hard subsoils as there are in the state. A successful alfalfa grower of wide experience recently said that any land which will produce good corn regularly and on which cottonwood trees do well is good alfalfa land. This is a fairly safe guide.

The failures in alfalfa growing in eastern Kansas have come where methods suitable for western Kansas have been adopted, and successes have followed where entirely different methods have been used. In eastern Kansas, owing to many years of cultivation and a good rainfall, the land is weedy. The usual experience is as follows: Ground thoroughly prepared in the spring, seed immediately put in, a good stand, and rapid, early growth; in September, a field with some alfalfa and a perfect stand of foxtail; next spring, no alfalfa or only half a stand. This experience is usually repeated two or three times, and alfalfa, not paying, is dropped.

As a rule, we have found that the successful alfalfa growers in eastern Kansas have started to prepare the ground a year before sowing the seed. They plant the land intended for alfalfa in corn or some other cultivated crop. They cultivate thoroughly and keep the land free from weeds. The following spring oats, or some other crop that can be taken off early, is put in, and as soon as the crop is harvested the ground is immediately plowed and thoroughly harrowed. It is

then harrowed or cultivated about once in ten days until the fall rains come. This harrowing has a double effect: it keeps a constant succession of weeds starting, only to be destroyed, and it causes a rapid formation in the soil of the nitrogen compounds essential to the growth of the young alfalfa plants. Late in August or early in September, as soon as the ground has been well wet, the alfalfa is sown. It may be put in broadcast. A better way is to mix equal quantities, by measure, of bran and alfalfa seed, drill and cross-drill, sowing half the seed each way. If the season is favorable, the growth of the alfalfa will be good through the fall, and a good hay crop will be secured the following year. If the ground does not get thoroughly wet in the fall do not sow, but sow the following spring, and after the alfalfa gets four to six inches high, cut every ten days or two weeks, whether the weeds are bad or not, with a mower set as high as possible. Mowing, to alfalfa, when just started, is as valuable as cultivation to corn. It makes the plant more vigorous.

A crop of soy-beans raised for seed is better than a grain crop to raise just before seeding to alfalfa. The beans, if planted early, can be taken off in time to sow the alfalfa, and the alfalfa can be put in without plowing the ground.

Alfalfa does not want a nurse crop. It does not want to be put in loose, freshly plowed ground. The ground should become settled after plowing, and just the surface made loose before planting. Time after time we have heard farmers report at farmers' institutes that they plowed their ground deep, harrowed it thoroughly, immediately sowed the alfalfa, and it was a failure. Deep plowing and thorough harrowing are needed, but let the ground settle before seeding. Alfalfa should not be pastured for the first two years.

We have found many farmers who have been unsuccessful with alfalfa who have cut it for hay just as they would clover—after the field had passed full bloom. In most cases this alone is sufficient to destroy the plants. Alfalfa should be cut in early full bloom, and it is better to make the first cutting in the spring before two-thirds of the plants come in bloom. On the College farm, in a dry season, we have seen the first crop when cut at this stage followed by a heavier second crop and a good third crop, while that left to be cut like clover was not ready much before the second cutting of the early cut, and yielded no hay after the first cutting. In rainy seasons we have sometimes cut the first cutting early when we knew it would be spoiled by rain, because if we waited we would have a poor second cutting, and probably no third cutting at all. Cut alfalfa early.

With poor stands on old alfalfa fields it will pay to disc thoroughly as early in the spring as the ground can be worked. We have secured

good yields from old fields of alfalfa having less than half a stand by taking a sharp disc harrow, well weighted, and harrowing and cross-harrowing as deeply as the machine will run. The fields looked as if all the alfalfa had been destroyed, but good yields followed. At this Station we disc alfalfa in March. A few farmers have reported alfalfa killed by discing in the fall.

We believe that it will pay three-fourths of the farmers of eastern Kansas to make a trial of alfalfa on the lines indicated in this article. Five acres is sufficient for the first trial; less is not practicable. Follow suggestions carefully; watch the progress closely. The results in most cases will be satisfactory; and where they are not, a farmer with good judgment, with this close watching, can develop modifications of these methods that will succeed on his farm.

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