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## Alfalfa For Livestock

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# ALFALFA FOR LIVESTOCK

## Growing and Feeding the Crop in South Dakota\*

**A**LFALFA is truly a wonderful crop; a hardy, deep-rooted, long-lived, drouth resistant legume plant; a nearly perfect forage; a very important crop for all parts of South Dakota. Alfalfa should be a permanent crop on every South Dakota farm. There is no crop that farmers can grow that will return as high an acre value for the labor expended upon it. Alfalfa has no superior as a hog pasture. It will withstand dry weather and in addition, it will furnish green feed over a longer period than any other legume. As it is a source of cheap, home-grown protein—both as hay and pasture—it has a very important part to play in the production of low-cost livestock. It is not to be considered as a crop for rotation purposes, as a good stand of alfalfa should last at least six or seven years. With two or three cuttings each year, an abundant crop can be realized from a single seeding. It is an important soil builder. Eastern South Dakota contains an average of only 6½ acres per farm. Considering its many profitable uses, this is entirely too small an acreage of this valuable crop. The amount that should be grown on each farm will depend upon the size of the farm and the number of livestock kept. Renters should insist on a small acreage at least, and far-sighted landlords cannot help but come to the conclusion that it is a valuable addition to their property.

### Growing Alfalfa

**Varieties.**—There are three important varieties; namely, Western South Dakota No. 12; Grimm, and Cossack. The Grimm and Cossack are recommended above the S. D. No. 12 for general planting in all parts of the state. Only seed from registered fields should be purchased. This seed is now sold in sealed bags guaranteeing its genuineness. The S. D. No. 12 alfalfa is very hardy and is recommended wherever the Grimm and Cossack is not planted.

**The Seed.**—Plant only the plump, clean, heavy, bright-colored, high germinating seed. Never buy and plant just alfalfa seed. Insist on getting South Dakota grown seed. Do not buy the seed advertised at a cheap price for most of it is entirely unfit for planting in this state. South Dakota produces absolutely the best seed to plant here, so play safe and buy this kind of seed.

**The Seedbed.**—A good, fertile, uniform soil, well supplied with humus and lime should be selected. Never plant alfalfa on a poor soil. The prospective field must have good surface and subsoil drainage.

The seed bed should be fine, firm and clean. Never plant in a cloddy, loose, weedy seed bed. Clean corn or potato land is given first choice.

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\*This circular was written by agricultural extension specialists at South Dakota State College, Brookings

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Fall plowed land well firmed in the spring makes a good seed bed. Spring plowed land is the last choice.

**Planting the Seed.**—Many methods are used. The ideal to strive toward is to plant the seed shallow in the firm soil just beneath the surface mulch. From one-half to one inch is the right depth. There are different makes of special alfalfa drills on the market. These and the regular grain drills equipped with a grass seeding attachment, make it possible to properly plant the seed. Where it is not possible to use any of these drill machines, the seed can be broadcasted, using machine broadcasters, wheel barrow seeders or the small hand operated machines. If



Fig. 1.—Good alfalfa seed—the kind to plant.

small hand operated seeders are used, great care must be used to see that the field is planted uniformly. Use the harrow after broadcasting. Mixing the alfalfa seed with small grain in the drill is not satisfactory.

Seed alfalfa in early spring, with very few exceptions. Plant at the time the small grain crops are seeded, or a trifle later. Early seeding is generally better than June 1 to 15, or later seeding. Late summer seeding is not recommended.

The amount of alfalfa seed to plant depends very largely upon the following points: 1. Purity and germination of seed. 2. Location and condition of seed bed. 3. Use of crop. Alfalfa seed that is free from weed seeds and of 90 per cent or higher germination, is the kind to plant. From 8 to 12 pounds per acre of this kind of seed should be planted for pasture and hay on the average farm in central and eastern South Dakota. If the soil is fertile, the seed bed well prepared and free from weeds, 8 pounds is sufficient. For the more western parts of South Dakota, and for seed production purposes, from 5 to 8 pounds of good seed put into a good seed bed is sufficient.

**Nurse Crop.**—A “nurse crop” of flax, wheat, barley or early oats is generally desirable. Cut the seeding rate of the nurse crop and take it off the land early if drouth threatens to hurt the alfalfa. If flax is used, seed it early. In some sections of eastern South Dakota, good fields of alfalfa have been secured by planting the seed between the rows of growing corn, in clean fields, at time of the last cultivation. Generally in

central and western South Dakota, a nurse crop is not desirable.

**Inoculation.**—The alfalfa plants should be inoculated. Over much of South Dakota inoculation comes naturally. This is especially true in the more western parts of the state. In eastern South Dakota where alfalfa is being sown for the first time on a piece of land, the safe plan is to inoculate. A satisfactory method is to purchase fresh reliable commercial cultures.

#### Care of the Alfalfa Field

**Hay Field.**—Leave the field of alfalfa alone as much as possible the first year. If a nurse crop is used, take it off as soon as possible, even

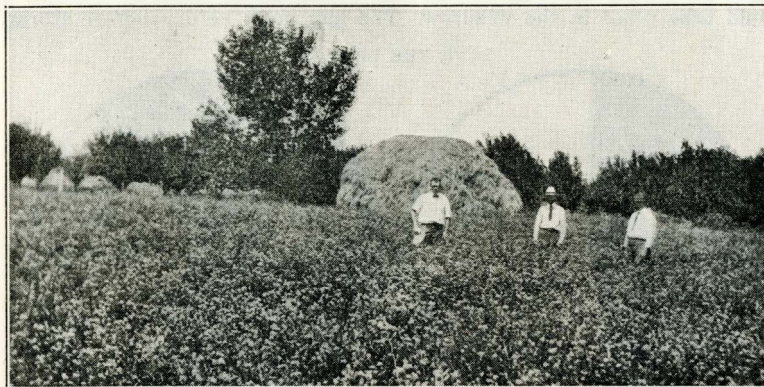


Fig. 2—A good stand of alfalfa.

cutting it early, for hay, if necessary to save the moisture for the alfalfa. If the alfalfa is seeded alone and the weeds become numerous, the field can be cut high when the alfalfa plants are just coming into bloom. Don't cut if there are only a few weeds. Frequent cuttings when the alfalfa plants are young is injurious. Do not pasture alfalfa the first year. Occasionally, a crop of hay is secured the first year under favorable conditions, but this is not to be expected as a usual thing. Leave a good stubble on the field to go into winter.

The second year the crop is ready to return yields of both hay and pasture. Recent experiments indicate that the proper time to cut alfalfa is when the plants are nearing the full bloom stage and before the stems get too woody and coarse and the leaves begin to drop off. Under this plan two cuttings of hay per year, in eastern South Dakota, results in as large a yield per acre, and keeps a better stand of plants on the fields and for a longer term of years. In eastern South Dakota, the practical plan is to examine the crowns of several plants when about one-tenth of the plants are in bloom letting the crop grow until the basal shoots are at least two inches tall. If it is not possible to cut then, do not worry, but plan to cut as soon as possible, not waiting longer than the time when the majority of the plants are just coming into full bloom. In the drier parts of South Dakota, it is advisable to cut earlier than where there is more moisture. The plan in these parts should be to cut early enough

so that during the average season the alfalfa plants will obtain sufficient moisture to make a quick second growth. Cutting the alfalfa plant is harmful rather than beneficial. Never try to extract the last straw of alfalfa from your field. Be fair to your alfalfa. Late fall cuttings, real early spring and frequent summer cuttings, all tend to weaken the alfalfa plants and makes possible winter killing and a thinning of the stand, thus bringing in weeds and grasses.

**Curing Alfalfa Hay.**—Most of the feeding value of alfalfa hay is in the leaves, therefore save the leaves. Handle the hay as little as possible. Get the hay in the window as soon as possible. The side delivery rake makes for proper handling of hay and quick curing. Most of the curing should take place in the windrow. The hay must be dry before storing

SAVE THE LEAVES

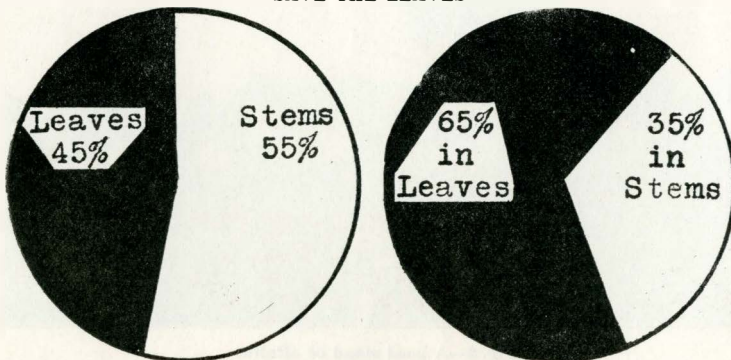


Fig. 3.—The circle at the left shows the comparative amounts of leaves and stems in the alfalfa plant. The circle at the right shows the comparative amounts of feeding value in the leaves and stems. The moral is: save the leaves.

in the barn or in the stack. Hay wet with dew or rain must not be stored or stacked. On large acreages, use hay loaders and slings for storing in barns and sweep rakes and stackers for putting in stacks.

**Pasture.**—Never pasture a new field of alfalfa. The first year should be given over entirely to making the largest possible root growth. Such treatment will result in a thriftier field which will stand heavier grazing in later years. The field for pasture should be treated the same as that for alfalfa hay in all other respects. The second season the alfalfa pasture can be used. Never graze alfalfa closely at any time. Especially avoid late fall grazing. A practical method of handling the alfalfa pasture for hogs is to have a field large enough so that all the hogs can be turned into it at the same time and still have sufficient feed to harvest one or more hay crops. Another method is to divide the field into two or more lots and change the hogs as one lot becomes eaten down.

**Seed.**—The production of alfalfa seed is not discussed here because it is fully covered in South Dakota Extension Circulars Nos. 202 and 248.

**Soil Improvement.**—Alfalfa is a soil builder. Because alfalfa is a legume crop, it adds nitrogen to the soil. The large roots go deep into the soil and use plant food not touched by the shallow rooted grains and

grasses. Use sweet clover in the short rotation of crops. Plow up the alfalfa field when it begins to thin out.

**Feeding Alfalfa**

The alfalfa plant is not surpassed in feeding value by any of the other roughages. It is rich in that muscle, bone and milk producing nutriment which is largely lime. Having a laxitive, conditioning effect, and being extremely palatable to all classes of livestock, there are few roughages grown that have such general use. Average production records

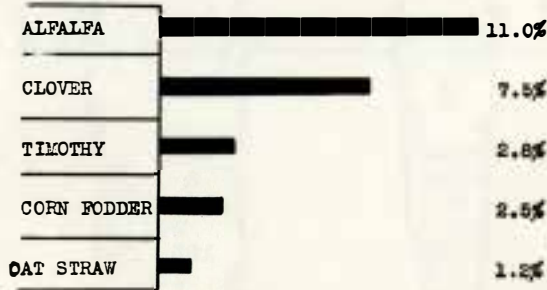


Fig. 4.—Alfalfa is Rich in digestible protein.

for the United States show that alfalfa hay produces over twice as much digestible crude protein per acre as red clover and three times as much as an acre of corn. Furthermore, it equals the corn plant in the total amount of digestible nutrients produced per acre.

**Dairy Cattle.**—Properly cured alfalfa hay is usually placed first among all roughages fed to dairy cows. It is very palatable and somewhat laxative character. It is rich in digestible protein and is the highest of all common feeds in calcium. Almost any dairy ration not containing this valuable legume is improved by its addition.

Study of the production of cows in South Dakota cow testing associations gives good evidence of the feeding value of alfalfa hay. It was found that four cows receiving alfalfa as a part of the ration produced as much milk and butterfat as five cows receiving a ration in which alfalfa was replaced with a non-leguminous roughage. It is the experience of many dairymen that when alfalfa hay is added to the ration production increases. On the other hand, when it is replaced by common roughages, and protein supplements, a marked reduction in production results.

Ordinary farm grown feeds are low in protein, which alfalfa hay supplies in abundance and usually at the lowest cost. It is possible to prepare a well-balanced ration for a dairy cow producing up to one pound of butterfat per day from alfalfa hay, corn silage, and ordinary farm grains. Such a ration is usually the cheapest in South Dakota.

**Beef Cattle.**—Alfalfa is one of the most important factors in South Dakota in lowering the cost of beef production and in increasing profits. It ranks as one of our best feeds for breeding cows and young growing stock and for fattening cattle.

The summary of many tests in wintering beef breeding cows, shows

that with home grown feeds, best and cheapest results are obtained by feeding a small amount of alfalfa, four to six pounds a day to each cow, along with all of the other coarse non-legume roughages such as corn fodder, sorghum fodder, wild hay, wheat straw or silage the cows will eat. These tests have shown conclusively that far better results are obtained by feeding a small amount of the alfalfa along with a non-legume roughage than by feeding either the alfalfa or the non-legume roughage alone. Alfalfa probably is the best roughage for fattening cattle. For

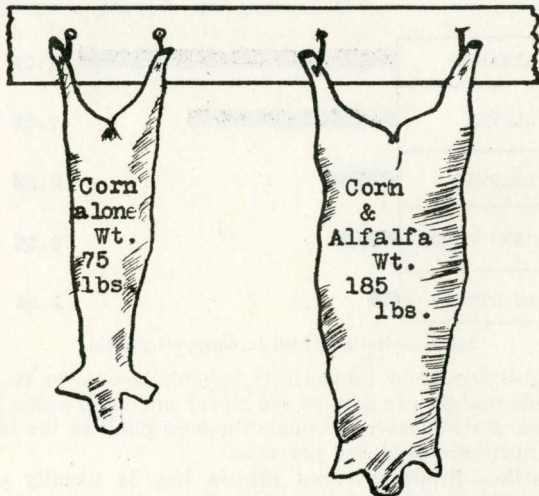


Fig. 5.—Pigs same litter fed 180 days.

wintering calves it has been found that alfalfa hay gave much larger gains than prairie or sorghum hay. Half and half alfalfa and prairie hay or sorghum hay gave approximately the same gain as alfalfa alone, but much greater gains than either of the other roughages alone. In wintering yearling steers, the results were quite similar. In an experiment conducted by the Nebraska Experiment Station comparing various combinations of corn, alfalfa, corn silage, and cottonseed meal, the corn and alfalfa gave the best results. In another experiment conducted by the same Station comparing eleven rations for feeding beef calves, the one composed of alfalfa hay, corn silage, and corn, gave the best and cheapest gains and the most profit.

**Hogs.**— It is a well established fact that the use of pasture crops is one of the best ways to keep down hog growing costs. Pasture crops supply succulent feed which helps to keep both growing and fattening hogs in thrifty, healthy condition. A rotation of pastures which gives a clean pasture, one that has not been used for hogs during the previous two years, for the sows and pigs each spring will help prevent and reduce losses from worms, necrotic enteritis and such diseases. Results of many experiments conducted at experiment stations all over the corn belt show conclusively that hogs grown or fattened on pasture make cheaper

gains than do hogs grown or fattened in dry lots. A summary of experiments conducted at several experiment stations in which hogs fattened on corn and tankage in dry lots were compared with hogs fattened on corn and tankage and running on alfalfa or clover pasture, shows that one acre of the alfalfa or clover pasture, made a saving of 20½ bushels of corn and 468 pounds of tankage.

Experiments conducted through three winters at the South Dakota Experiment Station showed that hogs fattened for market on corn and tankage given access to alfalfa hay fed in a rack made faster gains, finished at more uniform weights, and made cheaper gains than did hogs fattened on corn and tankage without the hay. While the hogs that got the hay ate only a very small amount of it, the small amount they did eat enabled them to make more efficient use of the corn and tankage consumed. Alfalfa hay also is one of our best winter feeds for fall pigs and brood sows.

If corn and tankage is used for winter feeding market hogs very good results will be obtained by feeding the corn and tankage in separate self feeders and the alfalfa hay in a rack.

**Horses.**—Both horses and mules are fond of alfalfa and when discretion is used in feeding, they thrive on it exceedingly well. Instances are on record where work has been performed on alfalfa hay alone, but such a practice is not only wasteful but likely to result injuriously to the animals. To get the full benefits from the protein in the alfalfa, a small grain ration should be fed. The first cutting being considerably coarser, is better for horses than the subsequent cuttings which are inclined to be “washy.” If the alfalfa hay is intended for horse feed it should be allowed to get a little riper before being cut than ordinarily would be the case as the resulting hay will be less “washy” than choice pea-green hay. A mixture of alfalfa hay and wild hay or timothy hay makes an excellent roughage for horses.

**Sheep.**—Alfalfa hay is an excellent feed for sheep, either for breeding or fattening stock. The coarse and stemmy first cutting is not as good for sheep as later cuttings. Sheep may be kept in a very good condition on alfalfa hay alone but the addition of a little grain is advisable, both for breeding and fattening animals.

**Poultry.**—The liberal feeding of green feed during the winter months increases the egg production of the poultry flock. Alfalfa hay is a good substitute for green feed. The second or third cutting of alfalfa is preferred as the leafy part carries the valuable properties. The leaves that shatter off in feeding hay to livestock are often gathered up and used for poultry.

Perhaps the best way to feed this hay is to place it in wire baskets or feeders that can be made by the use of pieces of 2-inch wire netting. The hens can then eat as much or as little as they like under ordinary conditions. If alfalfa meal is used in the mash, it should not make up more than 5 per cent of the total mash mixture.

Alfalfa pasture is an excellent source of green feed for the growing chicks during the summer months. An ideal chick range for this section would be an alfalfa field adjoining a corn field.

**Bloat From Alfalfa Pasture.**—Alfalfa is not a safe pasture for cattle and sheep. These animals may be pastured for some little time without



any trouble but sooner or later bloat will occur. When the alfalfa pasture is wet, there is a special tendency on the part of animals to bloat. A large quantity of this feed will cause a gas formation in the stomach and the pressure caused by this gas may be so extreme as to cause the death of the animal. There is no safe way to pasture alfalfa with cattle. Of course thousands of acres of alfalfa have been pastured without any difficulty, yet the owner is taking chances because bloat may happen any day. If cattle bloat on alfalfa, some immediate treatment is necessary. If the case is slight, it is possible that some exercise such as walking the animal for a half hour, will relieve the trouble. In other cases a wooden bit placed in the mouth of the animal and held by a rope tied to the horns, will relieve the situation but in extreme cases it will be necessary to use a trocar. The trocar is inserted into the left flank and the gas is then let out. This treatment should be followed by one pound of Glaubers salts dissolved in water and used as a drench.

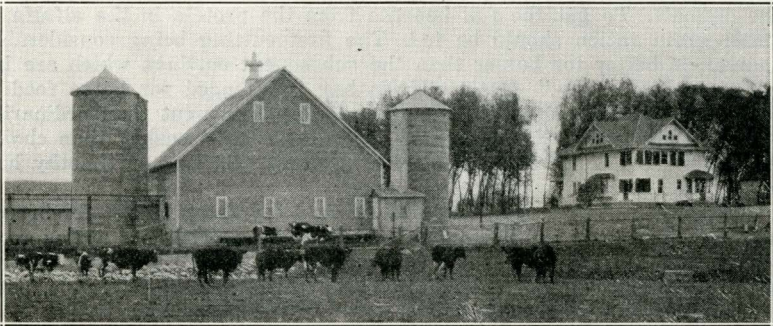


Fig. 6.—A good dairy herd, a silo and plenty of alfalfa hay are profit makers.

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