

Graduating Thesis

for
Alfalfa

by
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Alfalfa

Alfalfa belongs to the botanical family called Leguminosae. The family is so called because its fruit are in legumes or pods, with from one to several seeds in a pod. Peas and beans are the best types of this family. It belongs to the genus *Medicago* while the other clovers are of the genus *Trifolium*, three leaved. Its full name is *Medicago Sativa*. The generic name is derived from the Greek *Medike*, and refers to the fact that the Greeks obtained it from the far east probably Media in Asia, thus showing that it is of a very ancient origin being traced back to the ancient kingdoms of Media and Persia.

It was brought to Greece during the Persian wars in 470 B.C. and from thence it has continued westward in its course

following civilization, as it were
in its westward flow. It is known
to have been cultivated by the Ro-
mans for some length of time.

It continued in this direction
until it reached the western
coast of South America, from
this region it turned northward
and was welcomed on our coast
in the region of California, from
here it spread to the neighboring
states where it was grown with
remarkable success under irri-
gation.

The plant is of a slender
branching growth the leaves are
much smaller than those of the
clovers and are of a peculiar
dark rich green color. It has
the papilionaceous or pea blossom
which is characteristic of the
order Leguminosae, but the form
of the flower is different from
the clovers, as they have the flowers
clustered in a bushy or head

while in the alfalfa cluster the flowers are pedicelled and occur in succession along a lengthened axis blossoming from the base toward the apex, this form is called by the botanist a raceme, the seeds are arranged in a single pod coiled spirally. A very common average height of the plant is from 20 to 25 inches, but the most peculiar characteristic of the plant is its roots which penetrate the soil to an enormous depth usually until they reach water, they have been known to acquire a depth of 20 feet.

The soil best adapted for alfalfa is a sandy loam with a deep subsoil. It will thrive in varying degrees, on clay and even *quinto* and especially when the subsoil admits penetration by the roots, the condition of the subsoil is a very important

point to be considered in selecting land for growing alfalfa unless it is grown by irrigation, as the roots must reach the sheet water and the closer to the surface this is the more desirable is the soil for successful growth.

When alfalfa first reached the United States it was thought that it could not be raised excepting under irrigation and therefore did not receive much attention excepting in the western states where irrigation was practiced, but this idea was soon done away with, and it proved to be a success almost any place and especially in regions where other clovers could not be grown.

The soil should be plowed in the fall, unless the ground is very loose and liable to blow away with the spring winds, then it should be plowed in

early spring. It should be thoroughly pulverized before sowing as if fough cloddy or half way prepared soil will always result in a poor stand.

The manner of seeding may be either broadcast or drilled. In sowing broadcast, sow about 20 pounds to the acre and take particular pains to cover it at a uniform depth of about one inch, this is best done either with a disk or a harrow and then rolling it. In sowing with a drill it is best to cross drill, drilling half the amount required each way. In drilling it is not necessary to sow more than 16 pounds to the acre, if it happens to be a wet season the broadcast method is preferable.

The time of seeding is not very important to take into consideration as any month of the summer season will do

unless there is a periodic rainfall and drought, in such a case the seed should be sown just previous or soon after the rain, so as to insure a good stand which is essential in order to get good hay. If the plants are far apart the stems will grow large and heavy and the leaves will fall off more readily when curing, while if the plants are close together the stems will be thin and the foliage remain on the stem when curing.

The alfalfa hay is excellent and very valuable but it requires great care and considerable experience to get the best quality. It should be cut when in bloom and raked into windrows before it gets entirely dry otherwise the leaves crumble and fall off. After it has remained in windrows for some time it should be placed in rather large

cocks for it to cure before stacking. This process makes the best hay but if grown extensively this method is somewhat expensive and in this case it is allowed to cure in the windrows and taken immediately to the stack. In order to protect the stack well it should be covered or housed as the hay is coarse and will not shed water in the stack as well as some other varieties of hay.

One or two crops of hay may be taken the first year, the second and succeeding years three and sometimes four crops may be cut, but each time it should be cut when beginning to bloom as it will not grow any more and the stems become woody.

The hay makes excellent feed for all kinds of stock. It is very rich in nutritive properties, and albumenoids especially. The follow-

ing table will show its value compared with red clover.

	Red Clover		Alfalfa	
	Hay	Green in blossom	Hay	Green in blossom
Crude protein	8.5	1.7	12.3	3.2
Carbohydrates	38.2	8.8	31.4	8.1
Fat	1.7	0.4	1.	.3

This table shows that it contains more protein the most valuable nutrient.

It is fed to horses in preference to timothy and blue stem, as it has been found that they could be kept in a good hearty condition on at least one third less grain. The first crop of the season should be used for horses as the second and third crops, although excellent for stock, have the tendency to scour horses. It has been found that even hogs can be fed upon a moderate quantity of hay daily. If run through a chopping machine and wet up with oat or barley meal

it makes excellent feed for brood sows both before and after farrowing, as well as for the young pigs until they are old enough to go on the alfalfa pasture,

When seed is wanted it is usually best to take the second crop for seed although sometimes the third crop is taken, but as a general rule this is not so good as the insects which aid in fertilization are not so numerous later in the season as in the earlier part. The yield is very variable ranging all the way from nothing up to 75 bushels per acre.

Again alfalfa is very valuable for pasture, although not safe for ruminants as there may be fatal results from bloating a horse. Cattle are not so subject to this as sheep so that when proper precautions are taken cattle can be pastured

on alfalfa with very good results. For horses and hogs it is very good pasture, for work horses it is too washy, but for colts it is excellent as it is very rich in albumenoids, colts can be grown to a larger size and better bone on it than almost any other food.

It has given better satisfaction as pasture for hogs than any other stock. They can be turned on the field in the spring and need no other feed until about two months before the time to be placed on the market when they should be topped off with grain. When pastured they generally prefer the young stems, but these are not so good as just before blossoming time because they are too washy. Hogs when pastured also waste a great deal by tramping it down with their feet. Also if the soil is soft and wet

they will root in the ground thus uncovering the roots and destroying them. This objection or difficulty can be overcome by sorting, where the hogs are placed in a dry pen the alfalfa is cut at the required stage and fed to them and in this way they will eat it all up as if it is feed.

This one factor alone of pasture for hogs will make it a very valuable crop for certain districts such as western Kansas where it is difficult to raise grain crops. By the aid of irrigation the great arid regions can be turned into large and profitable alfalfa fields.

Alfalfa is a crop that will fill a long felt want to the farmers of our state, but it seems that they are slow to realize the real value and profit that can be derived from it, as has been stated before, it seems

to be especially adapted to regions where other clovers cannot be grown and this is the condition that Kansas is in. If we imagine a line running diagonally across the state cutting out a little more than the northwest half we will have the district which is especially in need of this crop and should be encouraged to grow it. There is no other place in the state where it can be grown more successfully than in the bottom of the Arkansas river in the region of Reno county, but it can also be grown very profitably in other parts and especially where it can be irrigated.