

MSU Extension Publication Archive

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Sweet Clover

Michigan State University Agricultural Experiment Station

Special Bulletin

C.R. McGee, Farm Crops

Revised January 1929

16 pages

The PDF file was provided courtesy of the Michigan State University Library

Scroll down to view the publication.

Oakley & Lardie

Special Bulletin No. 152 (Revised)

January, 1929

SWEET CLOVER

C. R. MEGEE



AGRICULTURAL EXPERIMENT STATION

MICHIGAN STATE COLLEGE
Of Agriculture and Applied Science

FARM CROPS SECTION

East Lansing, Michigan

SUMMARY

Sweet clover is a profitable pasture crop.

It is very valuable as a soil builder.

When cut at the proper stage, the feeding value of sweet clover hay compares favorably with alfalfa and red clover hay.

The biennial white strain of sweet clover is more commonly grown than other strains.

Satisfactory yields are seldom secured on acid soils.

Inoculation is advisable.

Sweet clover should be seeded on a well compacted seed bed.

It should be cut for hay at a height of 6 to 8 inches above the ground, just before the blossom buds appear.

The hay should be carefully cured.

Harvest sweet clover for seed when from 60 to 75 per cent of the seed pods have turned brown.

Sweet Clover

C. R. MEGEE

Sweet clover has long been recognized as a forage crop but only recently has its value been appreciated and a place allotted it in our agricultural program. The principal causes for the lack of appreciation of this crop are: (1) the tendency of the stems to become very coarse and woody when the plants come into blossom, (2) its aggressiveness on many waste places and (3) the bitter taste which makes it unpalatable until stock become accustomed to it.

If a hay crop is desired, the coarse, woody stems may be almost entirely eliminated by cutting at the proper time. The aggressiveness of the plant makes it very valuable as a soil improver, especially upon lands that have been cultivated over a long period and are low in organic matter and available plant nutrients. Sweet clover does not become a pest in cultivated fields or in pastures. Stock will become accustomed to the peculiar taste of sweet clover in a very few days and will eat the hay or pasture as readily as clover or blue-grass.

A Valuable Pasture Crop

Sweet clover is rapidly gaining in favor in this state as a pasture crop for all classes of livestock. It is especially well suited as a pasture crop for cattle and sheep, due to the fact that it very seldom causes bloat. Horses do well on sweet clover and hogs may be pastured on it advantageously when there is a sufficient amount of livestock, such as, sheep and cattle grazing to keep it down. However, alfalfa is proving more popular as a pasture crop for hogs.

Sweet clover has several advantages as a pasture crop. One of the outstanding of these is the fact that growth starts rather early in the spring and continues throughout the hot, dry summer months when June grass and other pastures are likely to be rather short.

Grazing should begin when the plants are from six to eight inches high, and sufficient livestock should be maintained on the pasture to keep the growth down to knee high at the most. If the plants get much taller than this they become woody, the bitterness increases rapidly and the quality of the pasturage decreases. When it is noticed that the growth is gaining too rapidly on the livestock, clipping the sweet clover to about eight inches high is advisable.

The carrying capacity of sweet clover pasture is exceptionally heavy. It varies of course with the season and with the soil, but as a rule, it may be expected to accommodate one head per acre throughout the growing season. Under very favorable conditions three or four head of livestock may be pastured on one acre.

One of the most frequent mistakes made in pasturing sweet clover

is having insufficient livestock on the pasture to keep the growth subdued. The pasture will last much later in the second year if the growth is pastured fairly heavy. This heavy pasturing prevents the plants from forming seed. When seed is allowed to form, the plants drop their leaves and die. The cumarin or bitter substance of young, succulent shoots is much lower than that of older, more mature plants. When the season is exceedingly dry and long the cumarin content sometimes gets so high that the plants cease to be palatable.

At one time it was thought by many farmers that sweet clover would not be eaten by most kinds of livestock. The success secured the past few seasons by many farmers of the state has shown conclusively that sweet clover is well liked by all kinds of livestock when they once become accustomed to it. The best time to start livestock on sweet clover pasture is in the early spring when the cumarin content of the young plants is rather low.

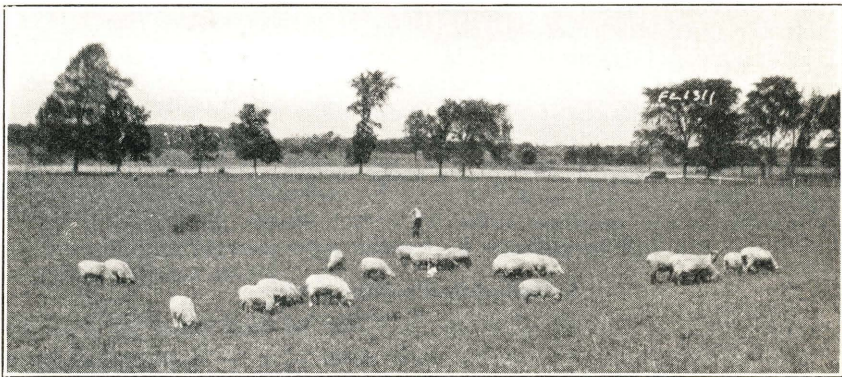


Fig. 1.—Sweet clover is an excellent pasture crop for all classes of livestock.

Cattle and sheep very seldom bloat when on sweet clover pasture. If cattle or sheep are very hungry and the sweet clover plants are wet, there is some danger. Sweet clover is much safer in this respect than alfalfa or June clover.

Cattle, when allowed sweet clover pasture only, frequently crave some dry roughage. This is much more noticeable during a wet year, due to the extremely succulent nature of sweet clover pasture. Usually this craving may be satisfied by allowing the cattle to have the run of a straw stack.

The fact that sweet clover pasture is succulent, however, is a decided advantage in the case of dairy cattle. A high flow of milk can be secured only when succulent feed is available. When June grass pasture becomes dry, it is necessary to feed ensilage to supply succulence. This is seldom necessary, however, with sweet clover pasturage.

The bulk of sweet clover pasture is produced the second season. However, if conditions are at all favorable considerable pasture may be secured during the late summer and fall of the first season. Owing to the peculiar bud formation of the sweet clover plant the first season, there is little danger of over-pasturing. Some top growth, however,

should be left for protection during the winter. Sweet clover may be used as pasturage more advantageously in a rotation than as a permanent pasture.

There are several different strains of sweet clover. The one most frequently grown in Michigan is the biennial white or common sweet clover. There are a few fields of biennial yellow sweet clover. The biennial yellow is from 10 to 14 days earlier in maturing and produces from two-thirds to three-fourths as much growth as the biennial white. The biennial yellow is more decumbent and for this reason a few farmers contend that it stands pasturing better than the biennial white.

The feeding value of sweet clover pasture is very high due to the fact that the plants contain a high percentage of protein as well as minerals. Nitrogen, potassium, and calcium are abundant in sweet clover. The phosphorus content is low.

A Soil Builder

Sweet clover grows on practically all soil types provided the soil is not acid. Many soils that are too low in available phosphorus and potash to produce a crop of alfalfa or red clover, frequently produce a fair crop of sweet clover. This is due to the sweet clover being able to make use of the phosphorus and potash that is not available to many other crops.

Sweet clover belongs to the group of plants known as legumes which, when inoculated, have the ability of making use of the free nitrogen of the air and storing it in the plant tissue. This is very important in crop production because nitrogen is one of the essential elements for plant growth, and the most expensive element purchased in a complete fertilizer. Through the proper use of leguminous plants, such as sweet clover, alfalfa, red clover, soybeans, and vetch, it is possible to almost eliminate the need of purchasing nitrogen in the form of a commercial fertilizer. This would not hold true of a field that had been cropped continuously for a number of years so that the fertility was greatly depleted. In this case the use of a fertilizer containing nitrogen would likely be profitable in starting the growth of leguminous plants. After these plants had become established, however, the use of additional nitrogen would not be necessary.

In many cases sweet clover benefits the soil physically. The large fleshy tap roots, which decay very readily after the plants die, add organic matter to the soil. The decaying organic matter has a loosening effect upon the soil which greatly benefits the tilth, and increases the amount of available fertility. Sweet clover roots decay very rapidly, much more so than alfalfa or red clover roots. It is sometimes stated that this rapidly decaying organic matter does not produce a lasting effect. It is very valuable, however, in starting the up-building process in depleted soils, and thereby paving the way for other crops, especially alfalfa. Because of its ability to improve the tilth, sweet clover is a very valuable crop to seed on heavy clay soils that have become deficient in organic matter and very difficult to work. Due to its ability to produce a fair crop on soils very low in available phosphorus and potash, sweet clover is an excellent crop to seed on light soils where other crops frequently fail.

The drainage is sometimes materially benefited by the decay of large roots leaving open channels for the passage of water through the hard subsoil.

Green manuring or soil improvement crops may be handled in one of two ways. Probably in the majority of cases the most profitable method is to harvest the crop for hay or seed, or to pasture off the crop and return the manure to the land. Since approximately two-thirds of the entire nitrogen of the plant is in the part harvested for hay, it is possible to increase the nitrogen content materially by returning the manure, provided it has been carefully handled. When carefully handled from 60 to 70 per cent of the nitrogen of the manure may be returned to the soil. Careless handling reduces the percentage and in many cases, the manure is allowed to leach in piles around the barn and is not returned at all.

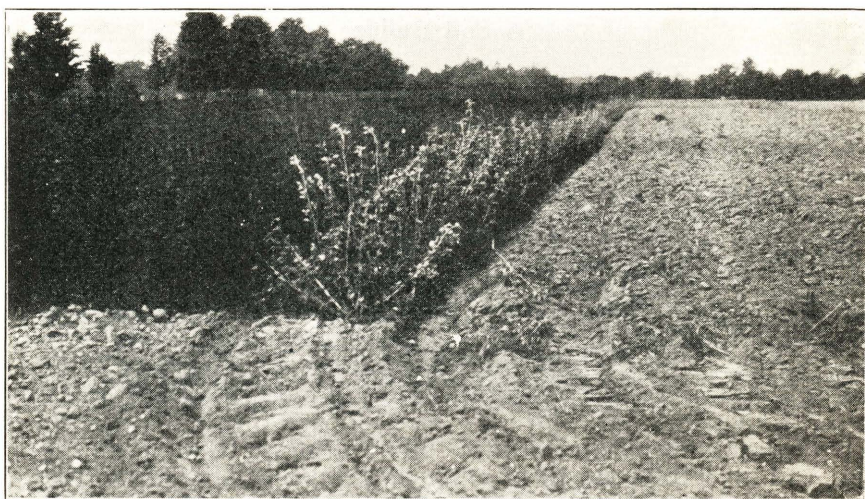


Fig. 2.—Plowing under a heavy growth of sweet clover with the tractor. Sweet clover is one of the best green manuring crops.

The other method consists of plowing under the entire crop and is somewhat more expensive than the first method. This method of handling is sometimes necessary when the soil has been heavily cropped for a number of years, and is in a badly run down condition.

The best time to plow under sweet clover depends largely upon the strain of sweet clover seeded and the crop which is to follow. For Hubam, or the annual white strain, the late summer or fall of the first year is the proper time to plow under the crop. The biennial white or common sweet clover stores a considerable amount of food material in the roots during the late summer and fall of the first season, consequently, if the crop is plowed under during the late fall the roots are likely to put out shoots the next spring, and if the land is planted to sugar beets or beans the expense of cultivating and weeding will be materially increased. In the case of corn, cultivation is largely by machinery so that sweet clover caused little, if any, trouble.

If the biennial white sweet clover is plowed under soon after growth starts during the spring of the second season, very little, if any, difficulty will be experienced from the old plants renewing their growth. If it is allowed to make a heavy luxuriant growth before being plowed under, the soil moisture is likely to be depleted, especially during dry seasons, causing a reduced yield of the succeeding crop.

A High Protein Hay Crop

Though sweet clover has a greater place in the state as a pasture and soil improvement crop than as a hay crop, many favorable reports have been received regarding sweet clover hay.

When the biennial white sweet clover is harvested the first season for hay, the quality of hay secured is comparable to that of alfalfa and red clover. The stems are fine and the leaves are very abundant. Whether or not a crop of hay may be secured the first season will depend very largely upon the fertility of the soil, the amount of lime present, and the rainfall. Under favorable conditions a crop of hay may be secured the first season. On light sandy soils, somewhat deficient in plant nutrients and organic matter, a crop of hay should not be expected the first season.

If the growth is large enough to warrant cutting for hay, it is usually advisable to take the first crop of the first season as a hay crop. The young buds that produce the second season's crop are very close to the ground and are not injured when the first season's crop is harvested. If the crop is cut so late that the plants are not able to make a few inches of growth, there is likely to be some winterkilling. The bulk of the growth is produced the second season and the quality of hay secured will depend very largely upon the stage of growth at which it is cut.

Sweet clover should be cut just before the blossom buds appear, that is when the small hard buds are forming in the outer whorl of leaves. When cut at this stage, sweet clover contains practically as much digestible protein as alfalfa and more than red clover. High quality sweet clover hay is well liked by all kinds of livestock when once they become accustomed to it.

Many cases have been reported indicating that cutting in full bloom, resulted in a coarse, stemmy hay containing but few leaves. Nevertheless when no other protein roughage is available, this hay may be used with good results.

As a hay crop, sweet clover is considered inferior to alfalfa where alfalfa can be grown successfully. The yield of sweet clover hay is usually less than from alfalfa, but is sometimes greater than that secured from clover.

A Valuable Honey Crop

Sweet clover has long been recognized by beekeepers as one of the most valuable sources of nectar. The period of nectar secretion usually follows that of white and alsike clover, and it extends for a comparatively long time because of the indeterminate blooming of sweet clover.

Beekeepers sometimes sow sweet clover along roadsides and other waste places where it will be available for their bees. The interest taken in sweet clover by beekeepers has done much to help establish the crop in many sections.

Produces Seed Abundantly

The yield of seed secured per acre is rather high compared with alsike and red clover. When sown broadcast a yield of from 3 to 5 bushels per acre is not uncommon, and yields of 15 and 18 bushels per acre are some times reported. When drilled in rows it frequently yields from 8 to 10 bushels of seed per acre.

The demand for Michigan grown seed is increasing. This is due to western sweet clover seed being badly infested with mustard and it is practically impossible to secure sweet clover seed from the west that does not contain at least a trace of mustard seed.



Fig. 3.—Harvesting sweet clover seed with grain binder in Alpena county. When the growth is not too rank the grain binder is one of the best implements to use for harvesting sweet clover seed.

Other Important Features

Sweet clover is much more disease-resistant than many other forage crops. The yield is not reduced by anthracnose, mildew or root rot, as is the case with red clover. During the early spring, sweet clover is sometimes attacked by *Rhizoctonia* which seems to check its growth for a few days. This attack, however, is soon overcome and growth resumed.

The same nitrogen-fixing bacteria that are used to inoculate alfalfa are used for sweet clover. For this reason sweet clover is a very valuable crop to precede alfalfa since it thoroughly inoculates the soil for alfalfa. This is especially important when the soil is very deficient in plant nutrients, especially nitrogen.

Sweet clover is very winter hardy and seldom winterkills in this State. On heavy clay soils that are very poorly drained, there is sometimes considerable heaving, possibly a little more than with alfalfa.

Sweet clover is very drought-resistant, and for this reason is very valuable for pasture when June grass pasture becomes dry during late July and August.

The seed of sweet clover is relatively cheap and likely to continue lower in price than clover and alfalfa seed, due to the fact that seed production is more abundant and frequently more dependable.

Sweet clover is suited to all types of soils that are not deficient in lime. It is one of the most productive leguminous crops for muck lands, and is well suited to heavy clays, to loams, and to light sandy soils.

Kinds of Sweet Clover

There are four kinds of sweet clover seed found on the commercial seed market. They are the biennial white, usually known as common



Fig. 4.—The practice of seeding sweet clover during early spring on fall sown wheat and rye is good.

sweet clover; the biennial yellow, frequently called yellow sweet clover; the annual white, called Hubam, and the annual yellow sweet clover.

The biennial white is the one most frequently seeded in Michigan; however, the biennial yellow is sometimes used quite successfully. The biennial yellow is from 10 to 14 days earlier in maturity and yields from two-thirds to three-fourths as much forage per acre as the biennial white. The stems of the biennial yellow are not quite so coarse and the plants are more decumbent than the biennial white strain. A few farmers prefer the biennial yellow for pasturing sheep, stating that due to its decumbent habit sheep do not eat it off as close to the ground. Furthermore, other farmers prefer it for hay, stating that the stems are finer and consequently the quality of the hay better.

When cut at the proper stage of growth, the biennial white is usually preferred for hay because of its more abundant yield. The biennial white is also more popular for pasture since its later maturity extends the pasturing season over a longer period of time and when kept in check there is but little, if any, difference in the quality of the pasture secured from the two strains.

Two early strains of biennial white clover, known as the Grundy County and Essex Crystal Dwarf, are being introduced into the state. The stems are finer and the maturity 10 to 14 days earlier than that of the common strain. They are heavy seed producers. Many farmers object to the dwarf strains for pasture due to their early maturity.

The Hubam, or annual white strain, is a one-season crop, producing about the same amount of top growth as the biennial white produces the first season. The root growth is somewhat less than that produced by the biennial white the first season. The annual habit of Hubam is a decided advantage when the crop is to be plowed under the fall of the year it is sown if the land is to be planted to sugar beets. When the biennial white is plowed under the same season it was seeded and the land planted to sugar beets the following spring, the buds of the old plants will resume growth and the sweet clover become a troublesome weed in a sugar beet field, necessitating considerable additional expense in cultivating the beets. In the case of corn, cultivation is largely by machinery so that sweet clover causes little if any trouble, providing a good job of plowing was done the preceding fall.

The annual yellow sweet clover is a small, erect-growing plant, producing seed the first season, and it should not be sown in this state because of the very small yield secured.

Growing the Crop

Sweet clover is frequently seen growing along the roadsides, along railroad embankments, and in other waste places where the top soil has been removed. This sometimes leads people to believe that it will grow anywhere and some have even predicted that sweet clover would become a pest difficult to eradicate from cultivated fields. In actual practice, however, many have failed to secure a seeding of sweet clover in cultivated fields when it would grow very luxuriantly along the roadside.

Properly handled, sweet clover does not become a pest. The fact that sweet clover makes a profuse growth under adverse conditions renders it a very valuable crop for building up worn out soils. The presence of lime along roadsides, railroad embankments and waste places where the top soil has been removed, is responsible largely for the growth made under these adverse conditions, while the lack of lime is responsible for the poor results secured just across the fence in the cultivated field.

Lime

Satisfactory yields of sweet clover are very seldom secured on acid soils. Even though the stand may be fair at first, the plants will be stunted in growth and but a small amount of pasture or hay secured. Soil in this condition usually requires from one to three tons of finely ground limestone, or from three to six cubic yards of marl, per acre,

to secure good results. The average application of ground limestone is approximately two tons per acre. The lack of lime is one of the most frequent causes of failure.

Fertilizers

Whether or not it is advisable to use a fertilizer depends largely upon the type of soil. On rich, fertile loams and clay loams of the Thumb and Saginaw Valley sections, neither lime nor fertilizer is used and excellent crops are secured. On light sandy loams that are deficient in fertility an application of acid phosphate, or of a fertilizer containing both phosphorous and potash, is sometimes profitable.

Barnyard manure, if available, gives excellent results.

It should be kept in mind that sweet clover is able to utilize plant nutrients not available to many other crops; but when the soil is badly run out, manure and fertilizers will materially increase the yield of forage.



Fig. 5.—Sweet clover does not produce well on soils that are deficient in lime. An application of ground limestone frequently means the difference between success and failure.

Inoculation

If neither sweet clover nor alfalfa has been grown successfully on the field, artificial inoculation should be made. Since inoculation enables sweet clover to make use of the free nitrogen of the air, it is especially important to inoculate when seeding on soils low in nitrogen and organic matter. There are several methods of inoculation, the pure culture being the simplest and easiest to apply.

The soil method of inoculation consists in dissolving one and one-half ounces of carpenter's glue in a quart of warm water and sprinkling it over a bushel of seed, which has been spread out on a smooth floor. Stir the seed and then sprinkle over the seed about a quart of very

fine soil that has been recently obtained from a sweet clover or alfalfa field where the roots were heavily loaded with nodules.

Scarification

A high percentage of sweet clover seed is quite impervious to moisture and when the seed is sown during the spring or summer, this prohibits its germination that season. When the seed is sown during the late fall the freezing and thawing action of the soil moisture during the winter tends to break the seed coat and germination takes place during the early spring. Unscarified seed usually gives better results when sown during the late fall than does scarified seed. Scarified seed is much to be preferred for spring seedings.



Fig. 6.—A rank growth of sweet clover in barley.

Seeding

A greater growth and a more lasting stand are usually secured by seeding in the early spring on a well compacted seed bed. Loose seed beds are responsible for many failures. Sweet clover may be seeded in the early spring on fall sown wheat or rye, or with barley or oats. A better seeding is often secured by sowing only a bushel of barley or oats as a companion crop.

Ordinarily a good stand will be secured by sowing 15 pounds of scarified seed, 18 to 20 pounds of unscarified, or 25 pounds of unhulled seed per acre.

On fertile soils, sweet clover seeded at the same time as oats sometimes makes such a large growth that the curing of the grain is difficult. On this kind of soil it is advisable to seed the sweet clover two weeks later than the oats.

Harvesting For Hay

Sweet clover should be cut just before the blossom buds appear. The stage of growth at which sweet clover is cut determines very largely the quality of hay secured. If allowed to come into bloom, the stems become woody, the leaves fall off and a very poor quality of hay results.



Fig. 7.—Too mature for hay. When harvesting is delayed until the plants are in full bloom the stems become woody and the leaves drop off, making a hay of poor quality. Sweet clover should be harvested before the blossom buds appear.

The height of cutting is very important. The second year sweet clover does not propagate from a crown as does alfalfa, but propagates from buds in the axils of the branches and leaves on the lower portion of the stalk. If the first cutting of the second year is made below the young branches, which bear the leaves, the stand will be destroyed and the second crop will not be secured.

The test mentioned in Table 1 indicates that sweet clover should be cut just before the blossom buds appear and from six to eight inches high or sufficiently high that a few leaves will be left attached to the

stubble. A seven or eight inch stubble may be left by replacing the shoes of the mower with higher shoes which can be made of strap iron at any blacksmith shop. The extension shoes used at this Station are shown in Fig. 9.

Curing Sweet Clover Hay

Sweet clover is more difficult to cure into hay than either alfalfa or red clover. This is due chiefly to the large amount of moisture within the plant at the time of cutting, delaying the curing of the stems

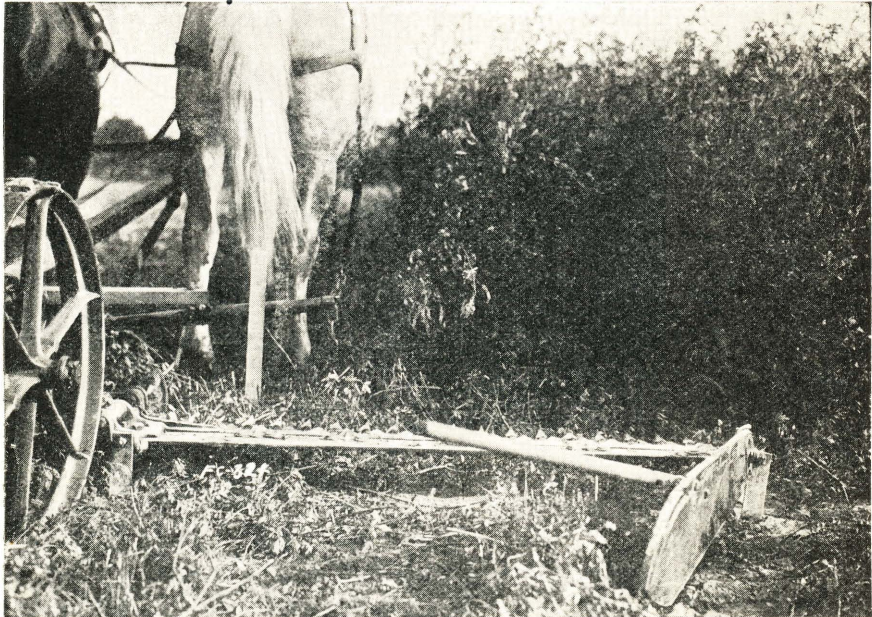


Fig. 8.—Special shoes shown in Fig. 8 attached to the cutting bar. In order to secure a second crop the second year, the first crop of the second year should be cut from six to eight inches above the ground.

until the leaves have dried so that they shatter from the stems. That the leaves constitute the best part of the hay is shown by the analyses in Table 2.

Table 1.—Results secured from cutting a field of sweet clover on the College farm at various heights and at different stages of maturity.

Stage of maturity	Height of cutting		
	3½ inches	5½ to 6 inches	9 inches
Before blossom	Stand destroyed	Stand only slightly injured	Stand not injured
Beginning to blossom	Stand destroyed	Stand nearly destroyed	Stand not injured
Full bloom	Stand destroyed	Stand destroyed	Stand nearly destroyed

Table 2.—Average analyses of the leaves and stems of four samples of well cured biennial white sweet clover hay.

Analysis made by the Bureau of Chemistry, United States Department of Agriculture.

Samples	Moisture	Ash	Ether extract	Protein	Crude fiber	Nitrogen free extract
Leaves.....	8.70	10.92	3.09	28.20	9.28	39.78
Stems.....	8.70	8.08	0.70	10.16	39.45	33.08

The samples represented the first cutting of the second season. The protein content of the leaves is nearly three times that of the stems, while the crude fiber content of the stems is over four times that of the leaves.

One of the most successful methods of curing sweet clover hay is to allow the plants to wilt in the swath, then place in the windrow with a side delivery hay rake and a few hours later place in small upright cocks. The hay should be in cocks before the leaves have dried out sufficiently to crumble or shatter. The hay is then left in the cock until cured sufficiently to put into the barn or stack. This may be only two

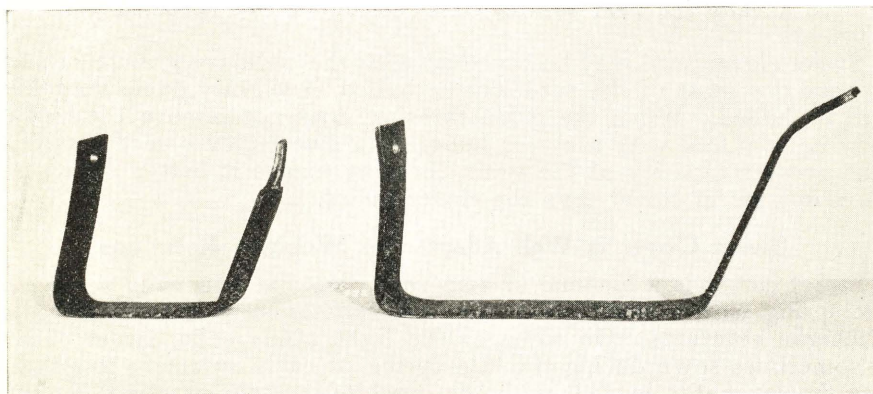


Fig. 9.—Shoes such as these may be made at any blacksmith shop and are used to raise the cutting bar in order that sweet clover hay may be cut from six to eight inches above the ground.

or three days or may be two weeks, depending upon weather conditions. The small cocks may be handled with practically no loss of leaf.

The practice of cutting sweet clover for hay with the grain binder is increasing rapidly. Four or six bundles are set up in long shocks and allowed to remain in the field until thoroughly cured. There is little, if any, loss of leaf by this method. The outside of the bundle turns brown but the inside remains green.

Prevent Poisoning by Proper Feeding of Sweet Clover Hay

It is not advisable to feed sweet clover hay as the only roughage for more than a month at a time to cattle and sheep. If fed with some other roughage, it may be fed for a longer period of time or it

may be fed for a period of about a month and then alternated with other roughages without danger of poisoning. The cause of the so-called poisoning is not well understood. The blood does not clot properly and bleeding either externally or internally is likely to result.

Harvesting For Seed

The best implement to use in harvesting sweet clover for seed depends upon the growth made. If the growth is not too rank and heavy the grain binder may be used. However, if the growth is very rank the corn binder will give better satisfaction. A swath 3 feet wide may be cut with the corn binder, when the sweet clover has been broadcasted, by placing ten-inch extensions upon the dividers. The mowing machine causes great loss of seed through shattering and is not satisfactory. Regardless of the implement used, the shattering will not be nearly so great if the plants are harvested when toughened by a light mist or dew. At this stage of growth most of the leaves have fallen off and no difficulty is experienced in curing. A sweet clover plant does not mature all of its seed at one time; consequently the proper stage for harvesting is when from 60 to 75 per cent of the seed pods have turned brown.

Harvesting seed is greatly facilitated if one or two swaths are mowed around the field before the sweet clover has attained too rank a growth.

Sweet clover seed may be threshed with the ordinary grain thresher. If very dry most of the seed will be hulled, if slightly damp very few will be hulled. When the grain thresher does not remove the hull it may be removed with a clover huller or a sweet clover seed scarifier. The greater capacity of the grain thresher makes it better suited for threshing sweet clover than the clover huller.

Sweet Clover is Well Adapted to Michigan Rotations

Sweet clover is a biennial or two-year crop and is usually seeded in the spring with a small grain crop and consequently is well suited to Michigan rotations. On some of the light sandy soils, sweet clover is sometimes sown during the late spring or early summer; this practice, however, fits in well with the cropping system practiced on this type of soil.

The aggressive habit of sweet clover along railroad embankments, roadsides, and on clay knolls where the top soil has been removed, has prejudiced a few farmers against it, for fear that it would be difficult to eradicate the crop completely when the land is to be sown to corn, beans, beets, etc. When properly handled, there is little if any danger of sweet clover becoming a pest under Michigan conditions. When the first year's growth of sweet clover is to be turned under for green manuring purposes for beets or beans, it is recommended that the field be plowed after the plants have made some growth the following spring rather than during the fall of the year the sweet clover is sown. When the first year's growth is plowed under the same fall many of the plants will not be entirely covered and these are likely to make considerable growth the following spring. When plowing is delayed until the plants have made some growth the following spring, no trouble will be experienced in eradicating them.