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Curing Alfalfa  
Michigan State University Extension Service  
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## CURING ALFALFA

H. C. Rather

Among the many important factors in securing a barn full of high quality alfalfa, of outstanding importance is the method employed in the cutting, curing, and handling of the crop. Many successful alfalfa growers lose much of the value of their crop by not making hay in the



The use of the left-hand side-delivery rake and the hay loader helps Michigan alfalfa growers to harvest a quality product economically.

most effective manner. After all, no crop is satisfactorily produced until it is under cover in condition to take the fullest advantage of the market. With hay, where this difference in condition or quality frequently means a difference of two dollars to ten dollars per ton in price, or an equal difference in home feeding value, it is of particular concern that the cutting and curing operations be well advised.

Michigan State College

R. J. Baldwin, East Lansing

Extension Division

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Ideal alfalfa hay is characterized by a rich green color, a pleasing aroma, and the retention of its leaves, which make up the most desirable part of the hay from a feeding standpoint. It is also desirable that the hay be reasonably fine stemmed and free from foreign material or mixtures. These latter characters depend upon how the hay is grown. The leafiness, color and aroma depend on how it is cured.

### **Modern Machinery Now Lowers Cost of Making Good Hay**

Following up the alfalfa mower with a left-hand side-delivery rake, and then curing out leafy green forage at a great saving of expense and labor, has become the established practice on a great many Michigan farms during the past two years.

Ralph Hudson, Superintendent of the Michigan State College farm, began using this method in 1922 and made so excellent a grade of alfalfa at a 45 per cent saving in harvesting cost that he has employed the method ever since in the harvesting and curing of between 100 and 200 acres of alfalfa each season.

In 1924, the Michigan State College first sponsored a demonstration of this system at East Lansing. Beginning at Coldwater in 1925, extension specialists in farm crops from the College, working with the cooperation of farmers, county agricultural agents, and implement companies, have conducted more than 50 similar demonstrations in nearly every section of the state. About 150 keenly observant farmers were carefully watching the work in each instance.

### **New Haying System Widely Used**

The simplicity of the system, its great saving of labor, and the superior hay which resulted convinced scores of these men that they should apply the new system to their own hay making jobs. Since that time, farmers from Coldwater, Monroe, Caro, Vassar, St. Johns, Newaygo, Kalamazoo and other places have all been reporting that they have made hay more easily, made it more cheaply, and put up the finest alfalfa they ever had, since adopting the method which the College has been demonstrating.

### **Get Hay Out of Swath Quickly**

In detail, the new hay making system is this. When the alfalfa is ready for harvest; that is, when the new shoots have started and the hay is in one-tenth to two-thirds bloom, mowing is started. If the cutting is begun after the dew is off in the morning, that excess moisture has already been dried off and curing will be speeded.

The mower is followed with a left-hand side-delivery rake just as soon as possible. Mr. Hudson uses a tractor-drawn mower with an eight foot cutting bar and hooks the rake on behind, cutting and raking in one operation—a very practical procedure for large acreages.

The principle is just as easily applied to small fields. In this instance, a five-foot horse-drawn mower can be run for two hours. Then the team can be hooked to the side delivery, and an hour's raking of two swaths into one windrow will clean up what has been cut. Most rakes will not quite clean up two six-foot swaths but will handle one and

one-half easily. The idea in either case is to make sure that the whole day's cutting is raked into the windrow by evening.

At this point in the job, some misunderstanding has crept in. Some have had an incorrect idea that the Michigan State College has advocated the immediate loading of this hay and stowing it away in the barn the same day it was cut. Such a procedure is not safe in this state. No Michigan alfalfa, cut at the proper time, is ready to go into the stack or mow the same day it is cut. If it is ready in so short a time, cutting has been delayed too long and the hay is over-ripe.

Hay is ready to go in the barn when it has thoroughly cured, and that condition is not measured by time but by the judgment of the hay maker. Dry weather will speed up the curing process. Wet weather will prolong it indefinitely.



Start mowing when the dew is off and rake within two or three hours.

### **Speed Up Curing by Turning With Side Delivery**

To assist in speeding up the curing, the side delivery rake again comes into use. The hay that is left in the windrow the day it is cut is ready for a turn the next forenoon, provided there has been no rain. Driving along beside the windrow in the same direction in which the hay was raked and letting the left end of the rake nicely catch the windrow will turn it upside down on dry stubble and loosen the hay just enough for good airing.

### **Tedding is Out of Date**

This job used to be done with the tedder, an implement that tore into the hay roughly and left in its wake a blanket of shattered leaves, the most desirable part of the alfalfa. Tedding hay, like the deep cultiva-

tion of corn with the attendant root pruning, did more harm than good. It is out of date and should be relegated to the discard with other mistakes of the days gone by.

### **Save the Green Color**

If the weather is good, green hay can be made, the greener the better, but it must be remembered that green is a color, not moisture. Putting up green hay does not mean putting up damp or tough hay. It means putting up thoroughly cured hay which retains that rich green color associated with life-giving vitamins that make for highest feeding value and the top market price.

When the hay has cured sufficiently so that it may go into the barn safely, the hay loader is brought into use and the haying job finished up.

### **Maybe It Will Rain**

But suppose it rains. That does happen. And when it rains, some color is lost. But the leaves can still be saved by simply repeating the turning operation when the top half of the windrow has dried. If it rains again, the hay is turned again, and when it is dry all the way through, it is ready for the barn. The College farm put up some alfalfa which went through eight rains, but it came out of the barn the next spring grading U. S. No. 2. It had lost some of its desirable color, but the leaves were there.

### **Salt Tough Hay**

Many farmers are taking advantage of the affinity of common salt for moisture by using quantities of this substance on the stored hay. The Farm Department at Michigan State College is using a twelve-quart pail of salt to every load of hay. Salt has considerable value in absorbing excessive moisture. It is believed that it thus helps prevent bacterial growth which, in hay put up in too moist a condition, might cause excessive fermentation, resulting in mow burning, which injures the hay. In extreme cases, it might cause spontaneous combustion.

### **Why A Left-hand Rake?**

The left-hand rake has this advantage. It can follow the mower against the heads of the hay and deliver its windrow on clean stubble. If a long swinging turn to the right is made at the corner, rather than a sharp one, the rake will work better, and the turns with the hay loader can be made more easily. No hay will be missed on the corner after the first round. Raking against the heads gives a smoother windrow with less tendency to wad up in compact bunches, and a greater percentage of leaves will be under cover. Such a condition is desirable. When the leaves are in the shade of a loose, airy windrow, they do not dry so rapidly, and thus they do not become crisp and brittle as do the leaves left exposed to direct sunlight. On the other hand, the stems, turned up from their covered place at the bottom of the swath, are gotten out into the sunlight where they dry more rapidly. The result is that the stems and leaves dry down together, and when the stems are nicely dry enough to store the leaves are not brittle but contain

about the same moisture content as the stems and are not easily shaken or stripped off by the handling of the hay.

On the other hand, letting alfalfa lie in the swath during bright weather protects the juicy stems but rapidly dries the broad-surfaced leaves. If this is prolonged beyond a few hours, by the time the stems are dry the leaves have become crisp and are easily lost. Bleaching and loss of color are also greater in hay left in the swath in bright sunlight.

### **Will A Right-hand Rake Work**

Many farmers still have a good right-hand rake and would like to use it. They can, by dividing the field into strips which can be cut in two or three hours. Then by starting in the center of the strip and



Hundreds of Michigan farmers have watched demonstrations of the new hay making system, and have later applied it in their own fields with great success.

raking against the heads the same kind of a job can be done. It is not quite as convenient and the tractor-mower-rake hitch cannot be used, but by following the above practice this system can be employed.

### **Opening the Field**

Obviously, when raking is started with the left-hand rake, it is not desirable to roll that first windrow into the fence. To avoid this, when either the five or six foot mower is used, at least three swaths are cut around the piece. Then, turning to the right as the rake is brought into the field, the first windrow is raked away from the fence. The rake is then turned around and driven so that it just catches the third swath, which is raked back into the first windrow. The field is then all clear so that the rake can follow in the same direction in which the mower was driven.

### Save Time When Raking Light Hay

If the hay is very light, two five or one and one-half six foot swaths do not make a very big windrow. In this instance, it is advisable first to open up the field as described. Then, in case a five foot mower has been used, the rake is started four swaths in. Once around the field gives a small windrow inside two swaths. Another round, in the same direction, just nicely catching the windrow with the right of the rake, will give four swaths in one good windrow. This larger windrow is obtained with exactly the same amount of raking as though two swaths were raked in one windrow in the regular manner, and the larger windrow speeds up harvest when the hay is being loaded.

If heavy hay is cut with a six foot mower, the second swath is split with the rake, putting one and one-half swaths in a windrow. In light hay, three six-foot swaths are put in one windrow, raking in the same manner as described above in raking four five-foot swaths.

Farmers used to be discouraged from alfalfa growing by the sight of alfalfa fields all cocked up under canvas caps. That system made good hay, but, generally, it costs too much. The system described in this circular is a practical one, as so many farmers have proved for themselves, and it saves all the extra labor and the extra time it involved. Above all, it makes excellent hay, it saves the leaves even in adverse weather, and, when the weather is right, it makes that rich, green, leafy, forage that goes farthest in the manger and tops the market when it is sold for cash.

### Measuring Cured Hay in Stack or Mow

Hay will often shrink between 15 and 20 per cent (sometimes more) when stored in stacks or mows, this loss will vary with different kinds of hay. Some kinds of hay are heavier than others. Timothy hay is heavier than either clover or alfalfa. The longer the hay has stood, the deeper the mow and higher the stack, the heavier it is per cubic foot. The bottom of a mow or stack is of course much heavier than the top.

A good general rule to follow in measuring a mow of hay that has settled over 60 days is to allow 500 cubic feet to weigh a ton. In low mows or stacks or in top of a mow, more than 500 cubic feet of hay will be required to make a ton.

### South Dakota Method of Measuring Rick Stack

Obtain the number of cubic feet by subtracting the width from the overthrow, dividing the result by 2, multiplying this result by the width and this product by the length. (The overthrow is the distance in linear feet and inches from the ground on one side of the stack, directly over and opposite to the ground on the other side of the stack.)

#### Round Stack

Obtain the number of cubic feet by multiplying the circumference (taken at base of stack) by itself and the product by the height, and divide by 25.

Nature of hay	Cubic feet of hay in a ton	
	Settled 30 to 60 days	Settled more than 60 days
Clean alfalfa.....	512	422
Clean timothy and clover mixed.....	512	422

### Hay in Mow

Multiply the length by height by width in yards and divide by 15, if hay is well packed. If hay is shallow or loose in the mow divide by 18 instead of 15, to secure the weight in mow.

Example: A mow 20 x 40 with hay 20 feet deep would contain 32 tons if packed loosely while if packed solid would have 39 tons in mow.



