HAYING WITH LESS HELP

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HAYMAKING in Iowa usually comes piling in on top of several other jobs. In this time of war with a shortage of workers, farmers will be casting about for the best way to get their haying done with less help.

In haying there is a mighty good chance to save labor. We have made some studies of haymaking methods at the Iowa Station, conducted a personal survey among farmers out over the state in 1942 and have reviewed a study of the Ohio Station which it made of newer methods of haymaking on Ohio farms.

These various studies show that one method may take two or three times as much labor for each ton of hay made as another. The average acreage of hay on Iowa farms is 17.7 acres. This means that a lot of farms have very small acreages, so small that it is impractical to have a large investment in haymaking, labor saving equipment.

For many years the common method of making hay on Iowa farms has been to gather the hay from the windrow to a wagon rack with a hayloader and then to move the hay from the rack into the barn with a fork or slings. But recently

Above: A field forage harvester chopping hay out of the windrow. Below: Chopping hay with a stationary chopper and stacking it with slat fence aid. Fence is raised as the stack is built.

Some farmers who bale hay out of the windrow have made elevators for the loading of the bales onto the rack or truck. This saves both much time and hard labor.

sweep rakes have been replacing wagon racks when the haul would permit.

Our studies show that hay cures fastest in the swath, but the curing time isn't greatly prolonged if the hay is raked when a half to three-fourths cured; the leaf loss is small and the hay has a better color.

A few farmers prefer to omit the raking into windrows and gather the hay from the swath with a sweep rake. This saves some time at the expense of quality.

Those who have tractor mowers can save considerable time in mowing. A 7-foot tractor mower should mow an acre in 25 minutes, whereas a 6-foot mower drawn by a good team should mow an acre in about 48 minutes. If a field is smooth the side delivery rake can be pulled by a tractor to save considerable time. In 1941 at the Iowa Station it took a little less than half an hour of one man's time (0.42 man-hour) per acre to rake hay with a tractor-drawn rake.

New Handling Methods

Instead of all hay being handled on the farms now as loose hay, some farmers are chopping it and putting it in the barn or stacking it, and others are baling it out of the windrow. Each form of haymaking has its advantages and advocates. The method used depends much upon whether the hay is stored in the barn or put into stacks or temporary storage.

Let's assume that you are going to put your hay up loose, then what can you do to help reduce labor? We assume that if the haul is long you will use a rack and a hayloader in the field to pick the hay up from the windrow. First, build the load up in the rear of the rack so that you can push the hay that follows forward and downward. That will save labor.

If you are using slings, try putting them crosswise of the rack and use a short rack. In that way the slings can be placed before you start loading and you will not have to stop when half loaded to place the second pair of slings. Fill the rear end first and the front end last, then at the barn pull the load in the front slings into the mow first and the rear slings last.

If the haul of hay to the barn is short, one of the newer methods is to use a sweep rake (also called buck rake) instead of hayloader and rack. The load can be dropped at the barn on top of slings which have previously been placed, or it can be taken up with a fork. Tractors with a reasonably high road speed of 3½ miles an hour or more make this practice satisfactory for hauls of a half mile.

A sweep rake built on an auto or truck chassis may travel up to 20 miles an hour, making longer hauls practical. In the studies we made and reviewed, the big saving in labor per ton of hay was in using the auto sweep rake. The other sweep rakes, however, did save on the average nearly a third of a man-hour per ton (see the table).

In stacking loose hay in the field, about a third of the time was used per ton with sweep rakes as com-

Above: The combined tractor sweep rake and stacker—a new haymaking machine.

Right: This is a windrow pick-up baler with an automatic twine-tying device. Bales are pushed onto a trailer as made.

pared with using a hayloader and wagon racks. Field baling used only about half as much time per ton of hay as hauling it with wagon racks and stacking in the field and less than half as much time as hauling it to the barn in wagon racks. But when the time for picking up the bales in the field and storing them in the barn is added, the labor saving was lost. Of course about four times as much hay can be stored in a given space when baled. There are machines for reducing the labor in picking up bales in the field.

Chopped Hay

Another of the newer methods of haymaking and a growing one is to chop the hay. Chopped hay is sometimes stored in the barn, but probably more often stacked. The older practice is to load the hay on wagons and chop it at the barn, blowing it into the mow. Our early studies show that this consumes about as much time as storing loose hay with hay fork equipment. But with a sweep rake instead of a wagon rack and a stationary chopper and blower at the barn, some time is saved. Likewise, the field forage harvesters which have come into use in very recent years require fewer man-hours per ton of hay put up.

One way chopped hay saves labor is that it is so much easier to remove and feed. It also saves mow space because much more can be stored in a given space. In putting chopped hay into the barn, care must be used to see that it is sufficiently dry to avoid danger of fire. To be safe it must be drier than hay put up loose.

The forage harvester is one of the most recent developments in haymaking machinery. This will either pick up and chop dry hay from the windrow or cut and chop a standing crop in the field. In most instances the hay chopper is driven by tractor power take-off although with the larger machines an auxiliary engine is used.

Top: Sweep rakes mounted on chassis of autos or trucks are replacing hayracks.

Center: Here the hay is unloaded to be drawn by a fork into the barn haymow.

Right: Slings may be used for lifting hay hauled to barn by auto sweep rake.

This farmer places his slings crosswise of a short rack and so does not have to stop when he's half loaded in the field to arrange the second pair of slings.

AMOUNT OF LABOR USED IN HANDLING DRY HAY BY DIFFERENT METHODS

INTO STORAGE FROM WINDROW IN FIELD

Form of hay Kind of storage	Equipment used	Labor		
		Number men in crew	Tons handled per hour	Man hours per ton
Loose dry hay Stored in barn	Hay loader, wagon racks, hay fork and carrier	8 8 3.4 (av.)*	3.88 2.68 1.1*	2.06 3.0 3.1*
	Tractor sweep rake, slings and carrier	4 2.6 (av.)*	2.72 1.3*	1.47 2.00*
	Auto sweep rake, hay fork and carrier	4 3.1 (av.)	3.31 1.8	1.21 1.7
Loose dry hay Stored in field stack	Hay loader, wagon racks, pole stacker, hay fork	5	2.7	1.85
	Hay loader, wagon racks, cable stacker	3	1.2	2.50
	Tractor sweep rake, pole stacker, hay forks	1	1	1.0
	Tractor sweep rake and stacker	2.2 (av.)	2.8	.8
Field baling	Pickup baler	3.5 (av.)	3.2	1.1
	Pickup baler, automatic twine	3	3.3	.91
	Pickup baler, rotary	1	4.28	.23
Collecting bales Stored in barn	Tractor-drawn sled, slings	3	1.49	2.02
	Trailer after baler, hauling with teams	2	2.88	.7
Baling and collecting Storage in barn	Pickup baler, various equipment	3.2 (av.)*	1.2*	2.7*
Chopped hay Stored in barn	Sweep rake, stationary chopper	4 2.3 (av.)*	2.40 1.7*	1.66 1.52*
	Field forage harvester, stationary blower	4 3.6 (av.)*	2.56 2.9*	1.56 1.2*
Chopped hay Stored in stack	Sweep rake, stationary chopper	4	4.2	.95
Grass silage Stored in silo	Hay loader, wagon racks, stationary chopper	8	5.72	1.4
	Forage harvester, trailers, blower	5	6.58	.76

Source of Data:
College Farms.
Iowa Survey Among Farmers.
*Ohio Survey, Mim. Bul. No. 146, A Study of the Newer Hay Harvesting Methods on Ohio Farms, F. I. Morison.

One of the important problems in handling chopped hay is getting the hay from the wagon or truck box into storage. A blower is customarily used, but the labor required to feed the chopped hay into the blower may be excessive. Numerous techniques and pieces of equipment are being developed. These consist of dumping boxes, boxes with sliding bottoms or drag chains. A very simple and satisfactory arrangement is to use a box that is short but deep. This materially reduces the labor. Providing the blower with a long conveyer and equipping boxes with hinged or removable sides also help with the unloading.

Chopped hay can be stored in the field in temporary storage. Successful stacks have been built by using a ring of slat fencing to hold the chopped hay until it is sufficiently settled to stand in a vertical pile. As the stack is built the fencing is raised.

Another growing practice on Iowa farms is to chop the green hay crop and make silage of it. A blower is commonly used to elevate the chopped grass into the silo, but the labor of feeding the material into the blower is greater than for dry hay because of its weight.

In the rainy seasons more valuable feed may be obtained from a hay crop by making it into silage than attempting to make dry hay. In order for this kind of silage to keep satisfactorily, ground corn or sorghum needs to be added with the chopped grass.

A study of the table and pictures accompanying this article may suggest to you ways and means of cutting your haying labor. We know that buying new equipment is almost impossible this year, but some of the equipment shown here was made by farmers, and many of the ideas presented came from farmers.

After the war is over, one may look for great advancements in haymaking machinery. Our methods of making hay have been about the same for a good many years. Implement manufacturers now are much interested in getting into this field of providing new and improved equipment.

Perhaps some of the changes we have indicated will become more common and others not yet developed may come into use.

Tipping the wagon or truck toward the blower helps unload the chopped green crops.