SECURING THE HAY CROP.

Editor "The Farmer's Advocate":

What was formerly the hardest work of the farm has now become quite easy by means of the work being done by machinery. The only trouble is, unless one has quite an acreage to take off, it would pretty nearly be as cheap to buy the hay as to buy necessary machinery, because machinery is not so very long-lived and the interest on the money invested and sinking fund for wear and tear is quite an item, and a man with a few acres of hay to take off will probably find it more economical to use more muscle and less machinery. Being pretty well south, and growing mostly clover, we usually start haying here about the 20th of June (but the Lord only knows what time we will start this year). We have a large acreage to take off, and as there is always a good deal of catchy weather, it necessarily takes some time, and we would rather have the hay cut a little too green than overripe.

We use a 6-foot mower for mowing the grass, and as soon as the hay becomes somewhat wilted and partly dried the tedder is started. At no time does a man need to be more of a "Johnny-on-the-spot" than handling hay, because the work cannot be laid out very far ahead, and a man needs to use good judgment to make good hay. Hay should be tedded before it is dry enough for any leaves to break off, but it should be wilted enough so that it will not tumble down too flat again, else the tedding does very little good. The tedder needs to be run fast, so as to turn it up as much as possible.

It is now generally recognized that hay is better put into the barn in a much greener state than was thought possible a few years ago. If it has no dew or rainwater on it, a good deal of sap in the hay is not going to injure it, and that helps us two ways, enabling us to get the hay in more quickly, and also avoiding danger of having it spoiled by rain. Rain coming on the hay while it is green does not do it much harm, but if a heavy rain comes after it gets dry (or even if it dews), it is bleached badly and will not make as nice hay or have the aroma. If rain comes on hay as green as it is fit to put in the barn, it would not injure it much. If, then, we are able to follow up our work, and put the hay in as fast as it should be, and as fast as it is dry enough, then we are not liable to get our hay injured much from rain. If a rain does come on it before it is quite fit to gather, then we start the tedder just as soon as it is partly dried and the rain has stopped. That gets the water out of it sooner, and saves the bleaching.

We have seen one man get practically all his hay spoiled during showery weather, and his next neighbor would get in his hay in very fair condition. Just the difference in the managing.

As soon as the hay is fit to gather we start the hay-loader, following the opposite way from which it is mowed. We do not rake the hay at all, as the loader will pick it up clean as a rake, and while one man and team would be raking it, the loader would pick it up nearly as quick and land it on the wagon, and no danger of it receiving rain when in the rolls; because, if it gets the rain in the winrow, then it is hard to get it dried out.

Of course, it takes a little more time to put a load on without raking, but when the hay is heavy, two men will find all they want to do to take care of it as fast as the loader can put it up. We often clear a field of hay without even taking a rake of any kind in it. We have no side-delivery rake, and do not want any. We have a two-horse rake, but use it very little. We are thus able to save on machinery. Our way of unloading hay at the Annandale Farm is different from any place else, and the description would be more interesting than to give information. As we have a 12-horse-power engine in the barn and the boiler at the creamery, when we put the hay in the barn we unload it by steam power, it being fixed so that the hay-fork rope that unloads it winds around one shafting pulley, the trip rope around another, and a rope fastened to the car to pull it back around another. The barn is so big and the amount of rope necessary is so heavy that a man can hardly pull the car back. This way of unloading by steam power is very handy, and takes but very little steam. A man stands up on one place and operates levers which throw the different pulleys in and out of gear with friction pulleys, so that he has control over all the ropes, and can put the hay up very steadily. Of course, haying under these circumstances is something of a picnic rather than hard work, but with so much machinery a man has got to be something of a mechanic and keep things in good shape. We put in more than 100 tons in one mow, and although it is put in pretty green, we never have any hay spoil. It always comes out fine.

As regards alfalfa, this seems to grow better on paper than it works out in practice. We have been working with alfalfa for several years, but have about concluded to give it up. It is hard to keep a field of it growing; spots winter-kill, and the hay made from alfalfa is not as well liked by stock as clover hay. The chemist may say it is just what the cow should have, but then, if she don't think so, there is a "kink" in the reasoning.

GEO. RICE.

WHY EARLY CUTTING PAYS.

Notwithstanding the late season, haying will soon be here, and it behooves the thrifty husbandman to prepare to make the best possible winter feed out of the all-too-scanty crop. One way to do this is to commence cutting the alfalfa and clover early. It is a great mistake to think a saving can be made in such a season as this by keeping the mower off to allow more time for growth. The exact opposite applies. Early cutting favors a heavy aftergrowth, which more than makes up any deficiency in weight of the first cutting. Particularly with red clover is this the case. Red clover is a biennial. Normally, the plant dies out after having produced a head of seed. Sometimes it doesn't, but such is its tendency. The nearer it comes to producing seed, the more likely is this habit to assert itself. The farther we keep it from maturity, the more likely is it to produce a good second growth. Growers of clover seed recognize this principle by pasturing until June 20th, rather than leaving the first crop for hay; and when they do leave it, they cut the hay as early as possible. Of course, their aim in this is partly to circumvent the clover midge, but they will all tell you that by far the best aftergrowth is produced by early cutting. Your wife can illustrate the principle in another way. She knows that the more promptly she plucks her roses or sweet peas, or small cucumbers, the longer she has roses, sweet peas and small cucumbers to gather. The point is that in handling plants whose habit is to die after once seeding, the further we keep them from seeding, the longer we keep them alive and the thriftier they will be. So, from the standpoint of weight alone, it pays to cut the first crop of clover early. Begin in time to finish at or very shortly after full bloom. By treating the aftermath in the same way, the clover may often be made to live over the second winter, and produce a good growth the following year.

QUALITY FIRST.

But there is a more important reason in favor of early cutting than the effect on the aftermath. The best quality of hay is secured by early cutting. Analyses show that the clover plant contains its greatest feed value, and especially the most protein, at the full-bloom stage. Afterwards an increasing portion of the substance is converted into woody fibre, and the stalks become more like straw. As the object of growing and making hay is to secure a fodder superior to straw, common sense dictates the wisdom of cutting early, and sparing no pains in the curing. This is even more important with alfalfa than with red clover. The following figures, giving the results of analyses of medium red clover at various stages of maturity, will be of interest in this connection:

Below we give, also, the average results of three years' analyses of alfalfa at various stages. This work was conducted by Prof. Harcourt at the Ontario Agricultural College. This table gives percentage composition:

Stage of growth.	Fresh substance, lbs.	Protein, lbs.	Ether extract, lbs.	Crude fibre, lbs.	Carbo-hydrates, lbs.	Ash, lbs.
		Ash, per cent.	Crude protein, per cent.	Crude fibre, per cent.	Carbo-hydrates, per cent.	Crude fat, per cent.
Buds formed	8.59	19.11	28.18	38.89	4.23	
Blossom one-third out ...	7.24	15.52	32.06	41.67	3.51	
A little past full bloom..	7.01	13.99	37.67	38.82	2.61	
Heads in bloom	4210	539	116	1033	1731	260
Some heads dead ...	4141	469	106	1248	1379	226
Heads all dead	3915	421	94	1260	1378	208

To understand this table, let us expalin the terms. Ash is that part of the fodder which remains unconsumed after burning to whiteness at the lowest possible red heat. Ash is essential to the formation of bone. Crude protein, or protein, as it might be more simply designated, is the muscle-former, and is, as a rule, the most expensive element of a ration. Crude fat is that part which is soluble in ether, and consists of a mixture of vegetable fats, such as oils, wax, etc. Linseed oil is a common example. Carbohydrates include the sugars and starches. Crude fibre is the woody portion. It is the most indigestible and of the least value. The most striking and important lesson conveyed by these tables is that as the plant approaches maturity the digestible protein decreases seriously, while the indigestible crude fibre increases largely, especially in the case of alfalfa. When with this fact we consider that ripe alfalfa clover very readily loses a large part of its leaves, and that a ton of leaves is worth for feed two or three tons of stalks, the wisdom of cutting early surely requires no further demonstration, even allowing for the fact that sappy tissue and "catchy" weather increase the time and labor of curing.

EARLY CUTTING PREVENTS RIPENING OF WEED SEEDS.

But there is yet another count. Early cutting greatly reduces the number of weed seeds matured. Every summer one may see on certain farms meadows where daisy, thistles, curled dock and other weeds stand unmolested, ripening seeds to spread trouble all over the farm and often to neighbors' property, or, perhaps, through the manure of a livery stable, to land miles away. A very important measure in keeping farms clear of weeds is to use the mower in the meadows before they go to seed.

Cut clover and alfalfa early, therefore:

1. Because the increased growth of aftermath will more than make up for any slight deficiency of weight in the first cutting, while many of the roots will retain their vigor and produce a second season's growth.

2. Because early cutting makes the most appetizing, most digestible and most nutritious hay, whereas late cutting produces a feed only measurably better than straw, of which we get plenty from our grain crops.

3. Because early cutting prevents the ripening of millions of pernicious weed seeds.

4. Because, by beginning early, we are able to take advantage of every spell of nice weather, to forward the work instead of dragging haying out into the harvest, to the injury of both grain and hay.

FOR MODERN METHODS OF HAYMAKING.

Editor "The Farmer's Advocate":

Haymaking involves more points where good judgment and practical experience are of advantage than any other crop grown on the farm. Up to within very recent years, it was also considered the most burdensome work of all harvesting. There are still some who have vain superstitions about haymaking, but are fast giving way to newer methods. They are either compelled by the scarcity of help, or persuaded by better reasoning and observation, that prime hay can be made on more modern principles, with much greater rapidity, less risk, and less than half the labor, with modern haymaking appliances. There are many essential points to consider. I shall briefly discuss them under the different heads suggested.

The time for cutting must be determined by the stage of the growth of the plant, and no date can be fixed. The beginning of July is usually the time in our district, some years a little earlier, others considerably later. I favor early cutting. We sometimes cut a clover field, or part of it, quite early, which might be termed the pasture field. This, when well cured, makes excellent hay, comes in very convenient when pasture becomes dry, and is a most valuable substitute. The clover plant at this stage has lots of vitality, throws out fresh growth very readily, and soon gives an abundance of fresh pasture. This part should always be considered in any cutting, either for pasture or aftermath. I not only favor early cutting for the reasons already stated, but it makes a better quality of hay if cut before it gets hard and woody.

Clover should be cut when nicely in bloom. Experience has taught us never to sow clover alone. We always mix some timothy with it. Clover may get winter-killed or damaged, and, without the timothy, would leave a blank for weeds. The admixture of timothy also increases the bulk and does not lessen the value as a food. We cut when the clover is ready; the timothy will interfere very little. When a considerable portion of timothy is intermixed, the medium course has to be pursued. Timothy should not be cut too late, as it gets too hard and fibrous, which largely discounts its feeding value. We practically handle the whole crop with machinery, from the time it is cut in the field until it is stored in the barn, and the more quickly we can get it into the barn after it is ready, the better I like it, with the exception of lucerne or alfalfa. This crop has to be very carefully and differently handled. It should be cut when only partially in bloom, or it becomes very fibrous and hard, and even dangerous, causing derangement of the digestive organs; but, where well saved, makes the most valuable hay