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Hay Crop Silage Cuts Weather Risks

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WHY WORRY about the weather when it's time to harvest your hay crop? Ten thousand farm operators in Minnesota found a practical answer to that question last year. They eliminated the usual weather hazard of hay making by making hay crop silage.

Time of Cutting Important

Cut the crop when it reaches the proper stage (alfalfa, 1/10 to 1/4 bloom or when new sprouts start; alsike and red clover, 1/2 to 3/4 bloom; grasses fully headed but before bloom). A day or two delay may lower the protein content by as much as four per cent. Such protein loss in a ton of hay is equal to the protein in about 240 pounds of oil meal. Not only does the protein content of forage plants drop as they mature, but palatability and digestibility drop, too.

It's also well to keep in mind that the second crop of alfalfa and red clover will be heavier when the first crop is removed at the right stage.

Hay Crop Silage Cuts Feed Value Loss

Weather usually influences the time of cutting and the quality of field-cured hay. Even in good weather, the difference between feeding values of a standing hay crop and hay put in the manger has been great. The average loss has run from 40 to 50 per cent. Making silage, particularly of the first crop, will reduce that loss.

The USDA reported on a study made at Beltsville, Maryland, of three methods of handling the hay crop. The study covered three crops—the first and second crops of the first year and the first crop of the second year. Loss of dry matter and protein from the wind-

row to feeding, as reported, is given below:

	Silage	Partially barn dried	Field dried
		per cent	
Dry-matter loss	14.1	20.8	23.4
Protein loss	13.0	21.1	30.3

There's More Feed in Silage Than in Poor Hay

The 1951 season was particularly bad for making hay. Neither was it ideal for making silage. The idea that good silage is a certainty when you make it in the rain is false. No one knows what the percentage of moisture should be of material wet with rain or dew. Hay wet with rain or dew is likely to make strong-smelling silage, containing much undesirable butyric acid. In spite of this, however, we often get more and better feed from a rained-on crop put up as silage than from one left in the field to cure as hay.

The best silage put up without a preservative in an upright permanent silo, from the standpoint of odor and palatability, can be made from material containing about 65 per cent natural moisture. It should be cut short (1/4 to 1/2 inch) and packed well. At this percentage, you can squeeze no moisture from a handful of the chopped material. It will not remain in a ball when you slowly open your hand but no pieces will fall away from the mass.

The coarser the material is chopped and the more mature the crop, the higher the moisture content can be. Too high moisture affects odor and palatability of hay crop silage mainly in permanent upright silos. It is safer, however, to err on the high moisture side than on the low.

You Don't Need a Silo

A grower can make good silage even without a silo. He can use above-ground

silos, trench and partial-trench silos, temporary upright silos made from lumber, wire netting, and snow fencing, or he can make circular piles by moving a confining wall—snow fencing or a metal strip—up as the pile is built.

Judging by comments from users, two methods, other than the permanent silo, have vied for popularity:

1. Piles made on the surface of the ground by dumping loads on the top and packing well with a tractor.

2. Upright piles made by using one circle of snow fencing and pulling the fence up as the pile is built. When the snow fencing is filled to even half its height, the job of pulling it up is real work.

Chopped forage in such a pile can be elevated with a corn elevator or with a blower. To distribute the chopped material more evenly, set a tall pole to hold the blower and distributor pipes.

These precautions must be taken to make a good circular pile:

Start the pile on perfectly level ground.

Keep the pile level with extra tramping next to the container.

Don't let the height exceed the diameter.

Round the top slightly.

Remove the container a few hours after the pile is finished.

This method, carefully followed, will give less spoilage than when the pile is built by placing sections of fencing one on top of another and leaving the fencing around the stack.

Special Equipment Not Necessary

Expensive machinery is not a must in making good hay crop silage. Field choppers very definitely cut down the labor of putting up chopped hay crop silage and usually speed up the operation. But every operator has not owned nor been able to hire such equipment. Those who have used a push loader to

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County Agents to Show Corn Sidedressing Effects

FIFTY Minnesota county agents will demonstrate the use of nitrogen fertilizer as a sidedressing on a total of 250 corn fields in 1952. About 100 pounds per acre of ammonium nitrate (33½-0-0) will be applied to the corn at second cultivation. The best response is expected where corn does not follow a heavy application of manure or a legume sod.

Contact your county agent this summer and fall as to the results of this fertilizer treatment on corn.

PIGS: *For Healthy Pigs, Use Pasture; Feed Value Is High, Cost Low*

R. M. ANDERSON*

THOUSANDS of successful swine producers have demonstrated that good pasture is necessary for all swine. Although good breeding, feeding, management, and disease control all are necessary for successful production, good pasture contributes to all these. It saves and provides nutrients and makes possible sound sanitation programs.

Many different crops may be used as pasture for swine. We use alfalfa to compare other crops. One acre of alfalfa is considered enough for 20 full-fed pigs or 10 bred sows. The clovers (red, ladino, and sweet), rape, and rye all are good. Whichever crop you use should be inexpensive, palatable, nutritious, fairly hardy, and have a long growing season.

Some producers tend not to use pasture as much as they might in supplying well-balanced rations for the modern breeds of hogs that have been bred for rapid growth. Pasture and forage crops make up 80 per cent of all feed fed to beef cattle, 75 per cent for milk cows, 95 per cent for sheep, but only 5 per cent for swine. But no part of the pig's ration supplies such a variety of required nutrients. Green forage is a rich source of high-quality protein, essential vitamins, and minerals necessary for normal reproduction, milk production, and rapid growth.

Pasture Supplies Proteins

Seldom do pigs on well-managed pastures suffer from lack of nutrients. On a dry-matter basis, common grasses and legumes used for swine pasture contain 17 to 28 per cent crude protein. Therefore, you don't need to feed as much protein supplement when your

pigs get farm grains and minerals on forage.

The weight of the pig, amount of grain fed, and quality of the forage influence the value of the protein supplement fed. For 50-pound pigs on a full grain feed, one pound of protein supplement may replace 2½ pounds of grain. For pigs on less than full feed, it may replace only 50 per cent as much grain. Pigs fed no protein supplement consume much more forage. On good forage full-fed pigs may be able to balance their rations after 125 to 150 pounds without protein supplement, while for pigs on limited feed this weight may be 100 pounds or less.

In work at Purdue University, use of a protein supplement with pasture on pigs from 75 pounds to market shortened the feeding period by only 11 days. It must be remembered that these results which were obtained on good alfalfa pasture and minerals could not be equalled on grass or poorly managed pasture.

By contrast, swine producers expect to feed a protein supplement to all pigs in dry lot. Good forage will replace more than 50 per cent of the protein supplement required to produce 100 pounds of pork as well as 10 to 20 per cent of the grain. For brood sows, it may replace more than 20 per cent of the grain.

It's Rich in Vitamins, Too

Vitamin content in pasture for pigs is even more important than protein. Green forage crops are rich in carotene (vitamin A), providing from 20 to 35 milligrams per pound of fresh forage. Pigs that are full-fed on pasture will probably not consume more than 10 per cent of their ration as dry forage. This, however, will supply 10 to 15 times the amount of carotene recom-

mended by National Research Council.

All the important water-soluble vitamins are found in green forage at high enough levels to meet the requirements of all classes of swine. An average 150-pound growing pig requires about 5 milligrams of riboflavin per day—about the amount in 1 pound of alfalfa meal or slightly more than 2 pounds of green forage. About ½ pound of green forage per day will give a pig the amount he needs over that in an all-grain ration.

Plant protein supplements are also good sources of riboflavin. The same 150-pound growing pig requires about 17 milligrams of niacin per day. He can get it from the same 1 pound of alfalfa meal or 2 pounds of green forage. The niacin requirement above that provided by an all-grain ration is low.

Immature alfalfa may provide up to 40 times more calcium and dry alfalfa more than 100 times more than yellow corn. An average 150-pound pig requires the calcium (15 grams per day) present in 2½ pounds of dry alfalfa or 7 to 8 pounds of forage but isn't likely to consume that much. Therefore, for good management, provide a complex mineral as well as salt. Extra phosphorus usually isn't needed because most farm grains provide enough.

Mill concentrates and protein supplements are good sources of niacin, folic acid, and pantothenic acid. Remember that as pasture crops mature, their protein, mineral, and vitamin contents decline and they become more fibrous and less palatable. Eventually, pigs may refuse to eat enough forage and will need supplements.

Pasture Fits Other Management

A good pasture and forage program fits in well with a stronger sanitation program. You can shift pigs from one field to another when using temporary or rotation crops or grains to be hogged down. Even a permanent pasture is better than a dry lot.

Good pasture can help you with the most difficult job in swine production—weaning big litters of thrifty pigs. Pigs store water- and fat-soluble vitamins in certain body tissues when liberal amounts are provided. These supplies may be used later when the amount fed is inadequate. We have experimental evidence that the carry-over of different rations fed during the pre-gestation and gestation period affect the survival and growth of young pigs. Vitamin additions to farm grains have decreased mortality and increased weaning weights. And there is no cheaper source of these vitamins than good forage.

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CHICKENS: *With Careful Summer Poultry Management, Producer Can Gain from High Fall Prices*

CORA COOKE*

THERE IS a very thin line between feeding and management of poultry when it comes to evaluating results in terms of growth or of meat and egg production. This is particularly noticeable when we compare flocks on general farms where poultry is among several farm enterprises. Some producers tend to neglect management even though the feeding program is continued without interruption.

We can draw a good illustration from two flocks on which we have complete records. Both flocks showed high production ability, with average production of 204 and 242 eggs per hen for the year. Both finished the first four months of the laying year, November through February, with the excellent record of 88 eggs per hen. But in the four months, July through October, the 242-egg flock produced an average of 84 eggs per hen, while the 204-egg flock laid only 37 eggs per hen.

Dispose of Nonlayers and Replace Them

The high summer and fall record of the 242-egg flock was maintained in two ways:

1. The producer disposed of the nonlaying hens as fast as they appeared;
2. He had early maturing pullets ready to take their places. The last hens were turned off in August.

In only four months did production fall below 60 per cent and at no time was it as low as 50 per cent.

In the other flock, July production was just under 50 per cent and never rose to that level again. Failure to sell nonlayers, too slow maturity in the pullets, or both of these resulted in a low production rate at one of the most critical periods of the year.

It cannot be emphasized too often that the summer and early fall months can be one of the best profit periods of the year—provided that feed is not wasted on nonlaying birds.

Confine Flock for Summer

Another management practice that can boost summer returns is the complete confinement of the laying flock. When birds are never far from the feed supply, they get more of the feeds necessary for production. The result is

more and bigger eggs. And no eggs are lost because they were laid in out-of-the-way spots.

Profitwise, there is another advantage. Eggs produced in confinement are better eggs, which bring a better price. One of the most serious handicaps to marketing eggs in the midwest in the summer is the high proportion of eggs produced on free range. They are of low grade from the standpoint of yolk color, flavor, and keeping quality.

A well-insulated house is important to the success of summertime confinement of layers. Since it also influences winter results, it may be considered essential to the entire poultry enterprise.

Good Management of Young Birds Counts

Management of the young stock may decide the value of any feeding program. Good planning results in full production from the pullets beginning in September. Thus, producers can take advantage of the high-price period of the year which is consistently during the four fall months.

Early hatched chicks of an early maturing, high-producing strain are a must if the producer is to take advantage of this price situation. But management throughout the summer is fully as important to rapid and continuous growth.

Rearing pullets on green pasture not used by chickens the previous year assures protection against disease. Well-balanced rations must be provided, but so must conditions that make for full consumption. It is not enough that feed and water supply be constant, important as that is. Ample feeder space—two six-foot feeders per 100 pullets—is the first step. Feeders should be covered to protect pullets as well as feed against sun, wind, and rain. Moreover, full consumption during bad weather can be obtained only if some feeders are inside the shelters. Birds will not eat as much as they need for best growth if getting it involves too much discomfort.

What Type Shelter?

The type of shelter has much more to do with maximum growth than is commonly recognized. In the regular brooder house, birds may get overheated and have poor appetites in hot weather, particularly if too little space is allowed. The brooder house which accommodates 350 chicks to start with will comfortably house less than half

that number toward the end of the growing period. Irreparable damage is a frequent result of inadequate housing at this time.

On the other hand, a wire-enclosed roosting shelter, because of its openness, provides ideal roosting conditions for about twice as many pullets as would be safe in a regular brooder house of the same size. Cheap to build and easy to move, it is the perfect solution to the problem of space.

Fall Brings Another Chance to Gain From Planning

With the pullets ready to lay in late August or early September, should the producer sacrifice the high-priced large eggs from the yearling hens or risk delaying full production from the pullets by leaving them on range a little longer? If a choice must be made there is little question that housing the pullets is more important to the year's profits. But in many cases, temporary housing for hens (unused space in the barn, brooder houses, and shelters vacated by pullets) will permit full production from both hens and pullets at the time when the egg price is the best.

Thus, management, which is only another name for a plan put into operation, takes its place alongside of feeding as a guarantee of the best possible income.

Hay Crop Silage . . .

(Continued from page 1.)

move the heavy hay onto the rack and have pitched the green material into a regular stationary ensilage cutter have found the job easier than they anticipated. The load, of course, is not tramped.

A number of growers have eliminated both the use of choppers and most of the hand labor by putting up long hay crop silage. Dump trucks, cables laid under the load, and buck rakes have been successfully used to move the green hay onto a stack or into a trench. When long hay crop silage is made, packing cannot be over-emphasized. Too high moisture is not a problem. Too low moisture in long hay will cause serious spoilage and feeding value losses.

The time is past when the livestock man who grows his own forage can honestly blame the weather for late cutting and loss of feeding value in his hay crop.

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DAIRY COWS: *Get More from Your Pasture By Using Controlled Grazing*

RALPH W. WAYNE*

WITH A LIMITED supply of high-priced grain and concentrates available, the good dairyman will make every possible effort to use pasture this summer. Roughage has always been the dairyman's cheapest feed, and this is particularly true this year.

The cow should get plenty of roughage, whether it is pasture, hay, or silage. Grain should be fed to provide nutrients not supplied by roughage.

Controlled Grazing Wise

Controlled grazing will make pasture acreage go a lot further. Time spent in dividing the pasture into three to five lots will pay big dividends. The pasture will provide more feed when cattle are shifted from one lot to another as the grass is grazed off. A rest will give the grass a chance to come back for later grazing. This system has been followed for decades in northern Europe where land is at a premium.

Keep the cattle off pasture until the grass gets a good start. The treatment the pasture had last fall will determine how fast it starts this spring. If it was grazed off to the surface, it is probably weak and will start slowly. The plant can make food for its roots only if it gets some growth in order to manufacture this food. Grazing too early cripples the food-manufacturing plant, and the result is low production throughout the summer. Application of a nitrogen fertilizer will stimulate early growth on most grass pastures.

It is almost as bad to undergraze as to overgraze. If the pasture grows faster than the cows can keep it grazed,

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the grass should be mowed rather than left to mature. The mature grass is unpalatable, high in fiber and lignin, and low in feed value. Mowing off this excess pasture growth will stimulate new growth of palatable, nutritious grass.

How Much Will the Cow Eat?

The average cow will graze off about six per cent of an acre a day. Her mouth is only so wide, and she has only so much time each day to graze. The average cow will consume about 150 pounds of grass daily. Obviously, she cannot gather this much if it isn't on six per cent of an acre. If there is only 50 pounds of grass on this area, that is all she can gather. Therefore, it is important to have sufficient grass so that a cow can get her daily maximum capacity. With the limited growth found on many pastures, a cow would have to travel in high gear all day and night in order to gather 150 pounds of grass.

On the average, 150 pounds of pasture grass will supply enough digestible nutrients to maintain a cow's body weight and produce about one pound of butterfat or 30 pounds of milk a day. This will vary according to the efficiency of the individual cow to utilize feed and on the stage of growth of the grass.

Early in the pasture season, the grass is higher in water and lower in dry matter than later, but the dry matter present is high in protein and very highly digestible.

With fresh growth of grass, the protein and digestible nutrient contents stay relatively high. However, as the plant approaches maturity, the protein and the digestible nutrients are greatly reduced.

Feed Grain with Pasture

Even if grain is high priced, it will pay to feed high-producing cows grain while on pasture. One pound of grain should be fed, to supply nutrients not found in pasture each two pounds of milk. For example, if pasture provides nutrients for 10 pounds of milk, a cow producing 20 pounds of milk a day should be given five pounds of grain daily if she is to eat it.

As good grass is high in protein, home-grown grains can make up the grain supplemental feeding for cows on pasture. Later in the summer, in hot dry spells, pasture growth is usually greatly reduced. Feeding cows hay or silage during this period is advisable. If legume hay or silage are fed, home-grown grains can be continued. However, if pasture becomes very short and corn silage is fed in abundance, some protein concentrate should be added to the grain mixture to compensate for the low protein content of corn silage. Many dairymen now offer cows some dry hay all summer, even with good pasture. This supplies dry roughage, perhaps stimulates the cows' appetites, and reduces the problem of bloat.

It has always paid to feed dairy cows well. Right now, there is good demand for dairy products, so the dairyman whose cows have the ability to produce will be well paid for providing all the feed the animals need.

Calves less than one year old should be kept in the barn or if turned out on grass should be kept in a pasture separate from the rest of the herd. This will make it more convenient to feed them grain and hay. At this age, calves just aren't well enough developed to do well on pasture alone.

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