



Feeding the Milking Herd

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CIRCULAR A-417

JUNE 1

FEEDING THE MILKING HERD

Much emphasis has been put on high herd averages or high production per cow. Unless you receive a considerable share of your income from the sale of surplus or replacement stock, maximum production may not mean maximum profits for you.

Proper feeding is very important if you are to obtain the most profit from your herd.

A good, sound feeding program depends on:

- ★ Use all the good quality forage possible.
- ★ Supplement forage with grain, when necessary.
- ★ Select the most economical grain mixture to feed along with forage.

MILK FROM FORAGE ALONE

Dairymen frequently believe their forage supply is higher in quality than either chemical analysis or actual consumption by the dairy cows indicate. Even so, a certain level of milk production can be maintained by the dairy cow with no extra grain feeding.

Table 1 illustrates this point, as well as the different levels of milk production which may be supported by two grades of forage.

TABLE 1. MILK PRODUCTION FROM FORAGE ALONE*

Daily Production Before Concentrates Are Required		
Breed	Pounds of milk from good forage	Pounds of milk from average forage
Holstein	20	16
Br. Sw., Ays., M. S.	18	14
Guernsey	16	12
Jersey	14	10

* Table adapted from USDA Miscellaneous Publication 130

Remember, a high producing cow cannot usually eat enough good quality forage to support her maximum level of production.

SUPPLEMENTING FORAGE WITH CONCENTRATES

The ability of a dairy cow to profitably convert good quality forage to milk production is well known. Maximum profitable production usually can be obtained only if the forage ration is supplemented with concentrates higher in energy and total digestible nutrients per pound than are the forages.

The dairy cow's total digestible nutrient or energy requirement is increased rapidly when milk production rises above that shown in Table 1.

To support production at the level of 50 pounds of 3.5 per cent butterfat milk daily, a Holstein cow weighing 1,400 pounds has to eat nearly 50 pounds of hay or hay and silage (1 pound of hay equals 3 pounds of silage) to obtain enough total digestible nutrients (TDN). This amounts to 3.5 pounds of hay or equivalent per 100 pounds of body weight.

A dairy cow will not eat much more than 2.8 pounds of hay or equivalent per 100 pounds of body weight unless the forage is extremely good in quality. You must then determine how much and what concentrate should be fed to support maximum economical production.

Generally, there is enough total digestible nutrients per pound of grain to support production of nearly 3 pounds of milk.

Table 2 shows the type of mixture which usually will provide the lowest cost source of total digestible nutrients and will also provide enough protein in the ration to support milk production when fed with forage of the qualities listed in the table.

TABLE 2. CONCENTRATE MIXTURES FOR SUPPLEMENTING DIFFERENT QUALITIES OF FORAGE

Forage quality	Total protein content of mixture (pounds)	Amount of feedstuff required to make 1,000 pounds of mixture		
		Low protein feeds (below 12%)	Medium protein feeds (13 to 20%)	High protein feeds (over 20%)
Excellent - fine leafy legume or legume grass mixture	10 - 13	A. 500 B. 900	500	100
Average to good quality legume hay and silage, or equivalent	13 - 15	A. 300 B. 600	700 200	200
Average quality forage	15 - 17	A. 400 B. 500	400 200	200 300

Selection of grains to use will depend on availability and market price of grains. General recommendations for feeding concentrates according to production levels are given in Table 3.

TABLE 3. SCHEDULE FOR FEEDING CONCENTRATES ACCORDING TO PRODUCTION

Fat content of the milk	Daily milk production that may be expected from cows of different weights with all the good quality forage they will eat				Concentrates to feed for each additional 5 pounds of milk
	700-lbs. cow	1,000-lbs. cow	1,200-lbs. cow	1,400-lbs. cow	
(Per cent)	(pounds)	(pounds)	(pounds)	(pounds)	(pounds)
3.0	12	18	22	25	2.0
4.0	10	15	19	22	2.2
5.0	9	13	17	19	2.5
6.0	8	12	14	17	2.8

Assumptions which must be made to use Table 3 effectively are:

1. Each cow is eating about 2.5 pounds of hay or equivalent per 100 pounds of body weight.
2. The protein content of concentrate mix has been adjusted to agree with quality of forage being fed.
3. The body condition of herd is good.

These recommendations are to be used only as a guide. The amounts usually will be a little low for the extremely high producing cows in a herd. General observations of the individual cows must guide the herd manager in his feeding program.

MINERALS

Dairy cows should have iodized salt available to them free-choice at all times. The same goes for calcium and phosphorus. In addition, 1 per cent trace mineralized salt and 1 per cent of either dicalcium phosphate or steamed bonemeal should be placed in the grain mixture.

VITAMINS

Generally, vitamins have not been the limiting factor in dairy production. Vitamin A is being used by many dairymen at the level of 10,000 to 20,000 I. U. per animal per day. Recent research indicates there may be factors involved which will make this practice profitable even though by all measurements there is enough vitamin A or carotene present in feed supplies.

Vitamin D deficiencies should not occur where forages are usually field cured, as in North Dakota. Particular situations may exist in herds on a heavy silage program in which the silage was cut directly from the field with no sun exposure.

ANTIBIOTICS

There are many conflicting reports regarding the use of antibiotics in the dairy ration. Recent reports seem to indicate that the addition of antibiotics to dairy feeds is not generally practiced. It certainly will not correct any inadequate feeding and/or management programs.

PASTURE FEEDING

A cow on pasture usually gives more milk if she receives supplementary feed. The amount of supplementary feed needed depends on the quality of pasture she is grazing. It also depends somewhat on the butterfat test of her milk.

The amount of milk of different butterfat content that an average cow on good and average pasture should produce is given in Table 4. This table includes a guide to supplementary feeding for cows on pasture.

Good pasture is young, succulent and abundant enough so cows can graze their fill in 1 to 1-1/2 hours several times daily.

Average pasture is short and young, or of somewhat advanced growth, and is not tasty or abundant enough to permit cows to fill up in 2 to 3 hours several times daily.

Poor pasture does no more than maintain the weight of cows. Cows may need some hay, silage and grain to maintain their weight if the pasture is very poor.

TABLE 4. SUPPLEMENTARY FEEDING SCHEDULE FOR COWS ON PASTURE

Butterfat test of milk (per cent)	Pounds of milk daily that pasture alone should produce		Pounds of forage or concentrate needed to produce each additional 5 pounds of milk daily		
	Good pasture	Average pasture	Forage		Concentrate
			Hay	Corn silage	
3	40	20	3.3	10.0	2.0
4	30	15	3.7	11.0	2.2
5	25	12	4.2	12.5	2.5
6	20	10	4.7	14.0	2.8

Table 5 lists some of the common feeds available to dairymen in North Dakota showing their relative values in terms of "total digestible nutrients" and "total protein content".

TABLE 5.* AVERAGE COMPOSITION OF FEEDSTUFFS USED IN NORTH DAKOTA

Dry forages			
Feed	Total dry matter	Total protein	T.D.N.
Alfalfa hay 1/10 to 1/2 bloom	90.5	15.4	51.4
Alfalfa hay past bloom	90.5	12.9	47.7
Alfalfa bromegrass hay	89.2	11.8	47.9
Clover, red, all analysis	88.3	12.0	51.8
Mixed hay, good, less than 30% legumes	88.2	8.4	47.8
Mixed hay, good, more than 30% legumes	90.3	10.3	49.5
Prairie hay, western cut in mid-season	91.3	6.0	45.1
Sudangrass hay, all analysis	89.4	8.8	48.6
Wheatgrass hay, crested, cut early	90.0	9.2	50.8
<u>Corn silage</u>			
Alfalfa, wilted	36.2	6.3	21.5
Alfalfa, brome, not wilted	25.0	3.8	17.0
Corn, dent, well matured, fair in ears	26.3	2.1	17.2
Corn, dent, immature, before dough stage	20.3	1.8	12.9
Legumes, wilted, grain added	33.8	5.1	20.6
Sudangrass	25.7	2.2	14.4
<u>Concentrates</u>			
Barley, common, not including Pacific coast states	89.4	10.0	77.7
Beet pulp, dried	91.2	4.1	68.7
Beet pulp, molasses, dried	92.2	5.9	72.4
Corn, dent, No. 2	85.0	6.7	80.1
Corn ears, including kernels and cobs (corn & cobmeal)	86.1	5.4	73.2
Linseed oilmeal, exp. or hydr. process, 34% protein guar.	91.0	30.5	75.3
Millet seed, hog or proso	90.4	8.4	76.9
Molasses, beet	80.5	4.4	60.8
Oats, not including Pacific coast states	90.2	9.4	70.1
Rye, grain	89.5	10.0	76.5
Safflower seed oilmeal from partly hulled seed	94.0	30.3	65.1
Screenings, grain, good grade	90.0	9.2	62.8
Soybean oilmeal, exp. or hydr., all analysis	90.4	42.0	78.1
Wheat, hard spring, chiefly Northern Plains states	90.1	13.3	80.7
Wheat bran, all analysis	90.1	13.3	66.9
Wheat screenings, good grade	90.4	10.0	68.7

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