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### **Figuring Feeds For Dairy Cows**

Cooperative Extension, South Dakota State University

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## Figuring Feeds For Dairy Cows

When planning your milking herd's feeding program, numerous factors must be kept in mind.

First, you need to determine the type, supply, and quality of roughage or pasture available. At the same time you need to determine the proper grain mixture needed to supplement the roughage with the nutrients and protein necessary for maximum milk production.

But just selecting the right feed isn't enough. You must feed the grain mixture according to each cow's individual need. This is largely determined by how much milk she produces and her butterfat test.

### SELECTING THE RIGHT GRAIN

You naturally want a grain mixture that will supply the necessary nutrients at the lowest possible cost. Home grown grains most commonly fed are corn and oats, although barley, sorghum, and wheat are sometimes used. High protein concentrates include soybean oilmeal, ground soybeans, cotton seed meal, linseed oil meal, or a 36 to 40% protein commercial dairy concentrate.

In this area of the country the cost of energy from grain compares favorably with that of roughage. Therefore, you can usually economically feed a fairly high level of grain.

### HOW TO USE THE FEEDING CHART

The chart on the back of this fact sheet lists type of roughage and pasture that may be available on your farm, along with the grain mixture to be fed and the rate of feeding. These are not hard and fast rules, and should be changed as common sense dictates.

Cows that tend to get fat while milking, for example, will not need as much as indicated in the chart. Thin cows will need more. Ayrshire, Brown Swiss, and Holstein breeds will usually not need grain if producing less than 16 pounds of milk daily. Guernsey and Jersey breeds will usually not need grain if producing less than 12 pounds of milk daily. The base rate of 2 pounds of grain listed on the chart is to allow some grain for all cows producing over these limits of 16 and 12 pounds.

To illustrate use of the chart, assume that you have available alfalfa-brome hay, sorghum silage, corn, and oats. Also assume the cheapest source of protein is a 40% commercial protein supplement.

According to the chart, when mixed hays and corn, sorghum, or oats silage are fed, a 14% protein grain mixture is needed. You can arrive at this protein level in your grain mixture by mixing 6 parts, by weight,

By Hollis D. Hall, assistant Extension dairyman

# Figuring Feeds For Dairy Cows

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BREED PRODUCTION IMPORTANT WHEN



of corn and oats and 1 part of the 40% protein supplement.

For example, with a Holstein cow producing 40 pounds of milk daily, you should feed the base rate or 2 pounds plus 1 pound of grain to each 2½ pounds of milk over 20 pounds. This cow should receive 2 pounds plus 8 pounds ( $40 - 20 \div 2\frac{1}{2}$ ) for a total of 10 pounds of grain per day, whereas a Jersey cow fed the same roughage and producing 40 pounds of milk per day should receive 2 pounds plus 12.5 pounds ( $40 - 15 \div 2$ ) for a total of 14.5 pounds of grain per day.

To each ton of grain mixture you should add 30 pounds iodized salt, 10 pounds ground limestone, and 20 pounds steambone meal or 30 pounds of a good mineral supplement containing 2 parts calcium to 1 part phosphorous. It may be advisable to add a vitamin A supplement if the roughage is badly weathered. A chemical analysis can help guide your decision.

### FEEDING THE DRY COW

Your dairy cows should be allowed a 6 to 8 week dry period between lactations. It is important that you feed grain during this dry period, as milk production is increased more by grain fed while the cow is dry than at any other time. This is most important when dry cows are not receiving excellent quality pasture. Research has shown that for each 62 pounds of grain fed during dry periods 100 pounds more milk was produced during the next lactation.

The cow must build up her body, depleted from the previous lactation, nourish the unborn calf, and store fat to be used after she calves. Heavy producing cows do not usually eat enough to keep up their body weight for the first few weeks after calving, and the stored fat will be used for milk production. Dry cows

should receive 4 to 6 pounds daily of the milking herd grain mixture.

### FEEDING THE FRESH COW

About a week before calving you should reduce the amount of grain to 1 to 2 pounds daily, but continue feeding good quality roughage. During the last few days before calving, add a bulky feed such as wheat bran or ground oats to the grain mixture.

After the cow has calved give her all the luke warm

water she will drink and all the corn silage and legume hay she will eat.

Continue the bulky grain mixture for 2 or 3 days, then replace with the milking herd grain mixture. You should start the cow out on 4 to 6 pounds of the milking herd grain mixture per day and gradually increase until the cow is on full feed. The experienced dairyman watches the cows and does not increase the amount of grain too fast.

Grain Mixtures and Rates to Be Fed with Various Roughages

Kind of roughage	Percent protein	Rate of feeding	
		Ayrshire, Brown Swiss, Holstein	Guernsey, Jersey
Legume hay and/or legume silage (before bloom)	10% By weight 20 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 25 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 20 lbs. milk per day
Legume hay and limited amounts (up to 25 lbs.) of corn, sorghum, or oats silage	12% By weight 9 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 25 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 20 lbs. milk per day
Legume hay and corn, sorghum, or oats silage (free choice)	14% By weight 6 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 22 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 17 lbs. milk per day
Mixed hay and corn, sorghum, or oats silage	14% By weight 6 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 20 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 15 lbs. milk per day
Limited or poor quality mixed hay and corn, sorghum, or oats silage	16% By weight 4 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 20 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 15 lbs. milk per day
Non-legume hay and corn, sorghum, or oats silage	16% By weight 4 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 18 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 13 lbs. milk per day
<b>Kind of pasture</b>			
Excellent— Early growth legume (before bloom), bluegrass, and other grasses in early growth	10% By weight 20 parts home grown grains to 1 part protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 30 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 20 lbs. milk per day
Good— Alfalfa (½ to full bloom), alfalfa - b r o m e, bluegrass heading out), Sudan	12% By weight 9 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 30 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 20 lbs. milk per day
Fair— Alfalfa (past bloom), headed grasses	14% By weight 6 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 20 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 12 lbs. milk per day
Poor— Ripe grasses in late season, stubble fields	16% By weight 4 parts home grown grains to 1 part high protein concentrate	Base rate of 2 lbs.+1 lb. grain to each 2½ lbs. milk above 15 lbs. milk per day	Base rate of 2 lbs.+1 lb. grain to each 2 lbs. milk above 10 lbs. milk per day

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