



Feeding Practices - Article 15

Goal Maximize the utilization of feeds
Minimize the loss of nutrients

How efficiently feeds are utilized is affected by how they are processed and how they are fed

- 1 Larger-particle feeds in the ration are beneficial when cows are consuming --
 - A lot of finely chopped feeds
 - A lot of high moisture feeds
 - Young, lime-stemmed, lush forages
 - Minimum amounts of forage
- 2 The rumen microbes need soluble protein and soluble carbohydrates in order to grow, to multiply and to digest the ration efficiently. These soluble nutrients need to arrive in the rumen at about the same time, in the right amounts and on a rather continual basis throughout the day. Otherwise the microbes are shortchanged and the rumen won't function well -- that shortchanges you
 - Be sure the ration has sufficient amounts of soluble protein and soluble carbohydrates
 - Offer cows some feeds that are high in soluble protein, and some that are high in soluble carbohydrates (corn, barley, etc.), in the right amounts, periodically throughout the day
 - Avoid feeding cows large slugs of feeds that are high in soluble carbohydrate at any one feeding. Slug feeding causes acidosis and off-feed problems
- 3 Feed cows frequently. Offer them no more than 8 lb of concentrate per feeding, and feed some forages before offering them concentrates. The use of TMR's help to solve this problem
- 4 Hard kernels need to be ground or rolled finely to increase their digestibility. When doing this, be sure there is an adequate amount of effective fiber in the ration to compensate for the finer processing of the feed

Maximize Dry Matter Intake

Goal Maximize DMI in early lactation. Entice them to eat more than what they actually want. Keep the cow and her rumen healthy. Hold feed costs at reasonable levels.

You are in the business of converting feed into milk. To do that, you have to feed cows lots of feed, and it has to be good enough so they can utilize it efficiently. If they don't eat it, they can't convert it to milk. If they can't digest it they can't convert it to milk.

- 1 How much dry matter should cows eat? It is affected primarily by milk production and body weight. Small breeds, producing milk of higher fat and protein content, consume more DM per lb of body weight than larger breeds. Expected dry matter intakes (DMI) are shown in Table 1.

Table 1 Expected Dry Matter Intake as Percent of Body Weight

Milk per Day	Dry	30	40	50	60	70	80	90	100
Large Breeds	1.9	2.5	2.7	3.0	3.3	3.5	3.8	4.1	4.3
Small Breeds	2.0	2.9	3.3	3.7	4.0	4.5	5.0	5.4	5.8

- 2 Moisture affects DMI. Know moisture contents so you know much dry matter cows consume
 - Weigh feeds and test for moisture. DMI's are affected greatly by changes in moisture content
 - A slight change in moisture of high moisture feeds can cause a major change in dry matter as illustrated in Table 2. When the moisture level of silage dropped 10 percentage units, it represented a 14% change in moisture, but a 33% change in dry matter. That would be a significant change in the amount of dry matter being fed, that is, if feeding rates were not adjusted for changes in moisture content
 - When the moisture content of a dry feed, such as hay, changes by 10 percentage units, it represents a big change in percentage change in moisture, but the affect on dry matter is rather insignificant by comparison

Table 2 Moisture-Dry Matter Relationships

	Old Test	New Test	Difference	% Change
Silage Sample				
Moisture %	70	60	10	14
DM %	30	40	10	33
Hay Sample				
Moisture %	10	20	10	100
DM %	90	80	10	11

The effect these changes have on ration makeup, on DMI and on milk production can be significant as shown in Table 3.

Table 3 Moisture-Dry Matter Relationships

	Lb Fed	% DM	Lb DMI	% DM	Lb DMI
Feeds Fed					
Corn Silage	31	39	12	32	10
Haylage	23	52	12	47	11
Forage DMI			24		21
Concentrate	25	88	22	88	22
Total DMI (lb)			46		43
% of body wt			3.4		3.2
% from forage			52		49
Impact on					
DMI					- .3
Milk lb					6-8
Milk \$ (@ \$12.00/cwt)					\$0.72-0.96

A drop in corn silage DM of 7% (from 39 to 32) and in haylage DM of 5% (from 52 to 47) resulted in 3 lb less forage DM being consumed, when no changes were made in the amount of feeds being fed. This 3 lb loss in DMI impacted milk production by 6-8 lb. That equates to 72-96 cents less milk income per day when milk is priced at \$12.00. If forage intake level falls too far, acidosis and off feed problems could develop, making the economic impact worse.

- 3 Getting cows to eat more feed and drink more water
 - Keep feeds fresh
 - Feed frequently and keep feeds pushed up to cows
 - Don't feed cows partially spoiled feeds
 - Remove enough ensiled feeds from silos daily to keep the feed fresh
 - Don't allow uneaten feed to build up in the bunk and heat or spoil
 - Keep mangers and waterers clean
 - Feed and water should be convenient and easily accessible to cows most hours of the day
 - Don't make cows walk long distances for feed and water
 - The feed area should be close to a clean comfortable rest area, close to shade and close to an abundant supply of good quality water
 - Water intake enhances feed intake
 - Cows like to gulp down water by the gallons, especially after milking
 - Cows drink more from vats than from water bowls
 - Water bowls should be easy for cows to reach and to operate with little effort
 - Locate waterers close to parlor exits, close to feed areas and close to pasture lots
 - Assure adequate flow rates (well output, water pressure, pipe size, reserve tanks, etc.)
 - Install water systems that are easy to clean, and then keep them clean
 - Provide enough bunk space and plenty of drinking room
 - About 1.5 to 2.0 feet of bunk space per cow is recommended
 - Large water vats are preferable to water bowls
 - Cows eat and drink better in well-ventilated, well-lit areas that are shaded in summer
 - The feeding and watering area should be pleasant, enticing and non-threatening
 - Make eating and drinking a pleasant experience for cows
 - Be sure they can reach water bowls and operate valves easily. For good access to water bowls, cows need about 18 in. of head clearance between the top of the bowl and any rail that is above it.
 - Don't let them get shocked by cow trainers or stray voltage
 - Don't impair or discourage cows access to feeding and watering areas by --
 - Improperly placed neck rails and tie rails
 - Short chain lengths and improperly positioned cow trainers
 - High manger curbs. Curbs should be only slightly higher than the animals knees
 - Manger height should be about 4 in. higher than the surface cows are standing on
 - Cows prefer simple fence line feeders over locking headgates
 - Bossy cows can intimidate other cows and keep them away from feed and water
 - Create a heifer group, not because of nutritional differences, but for social reasons, it prevents heifers from being intimidated by older cows. Intimidation is a stress heifers do not need, especially at the time they first calve and begin their first lactation!
 - Don't force cows to use dead-ended alleys where they fear being trapped
 - When cows eat head to head, make the bunk is at least 6 feet wide



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MANHEIM (Lancaster Co.) — Lancaster Dairy Herd Improvement Association's (LDHIA) board of directors reviewed operations at its most recent meeting.

Jay Mylin, LDHIA manager, reported that the organization continues outstanding growth in number of herds and number of cows.

While significant increases in membership stretches the efforts of the field technicians, every attempt is made to assure quality service.

Collection of test-day data and transmission of data through DRMS continues to average less than two days for all herds with LDHIA.

Dairymen using PCDART should have all information, including sample data, available, on the average, less than 48 hours after testing.

The increase in sample volume continues to be handled efficiently by the testing laboratory.

Jere High, lab manager, reported that the Bently equipment, used to test milk samples,

continues to run smoothly. Lab personnel are adjusting to the increased volume of samples without adding additional employees. This helps lower dairymen's testing fees.

High informed the board of LDHIA's recent 100-percent lab quality certification for 1997 from National DHIA. This exceptional performance has continued for four consecutive years.

A new computer and work table were approved by the board to enable lab technicians to more efficiently enter data for herds being tested each day. Basic herds are being processed by a new computer placed in the office of the lab.

As growth continues, the board will spend time reviewing with management the needs of LDHIA, in order to continue to provide high quality least-cost service to its members.

Over the next few months, planning time is scheduled to determine our future needs. LDHIA will be coordinating personnel training efforts with allied industry to better prepare itself.

The board is appreciative of the cooperation it has received from so many members of the industry that support dairymen.