

# Feeding and Care of the Dairy Heifer and Cow

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The dairy heifer should be fed so as to maintain normal health and to grow as economically as possible. From one year to calving is the easiest and cheapest period in raising dairy cattle. It is a very important period, however, and should not be neglected. The heifer should be kept in a thrifty growing condition and not be allowed to become stunted or, the other extreme, to become too fat. The well-grown-out heifer can be bred to freshen at an earlier date than the stunted animal.

**Winter feeding.** Consumption of large quantities of good hay tends to develop desirable barrel capacity in growing heifers. The yearling heifer, if properly developed to one year of age, will continue normal growth on good quality alfalfa, clover, or oat and vetch hay alone. If she consumes daily  $2\frac{1}{2}$  to 3 pounds of very good quality hay per 100 pounds of body weight, she will need no other feed to attain normal growth. Silage or root crops may be fed in place of part of the hay at the rate of 3 pounds for each pound of hay replaced.

If the roughage is of poor quality, 1 to 3 pounds of a concentrate mixture should be fed daily. Oats or mixed grain and a silage are a satisfactory with legume or mixed legume and grain hay, such as oats and vetch. If only grass or grain hay and succulent feeds are fed, 10 to 15 per cent of linseed oil meal should be added to the concentrate mixture. The amount of concentrate mixture necessary depends on the quality and amount of roughage consumed. The amount fed should be only enough necessary for good skeletal growth and moderate flesh. When silage or roots make up a considerable portion of the roughage, it is usually necessary to feed as much as 3 pounds of concentrate daily for good growth. A plentiful supply of pure drinking water, salt, and sterilized bone meal should be available to the heifer at all times.

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The following table indicates the normal weight and height of heifers of different breeds at various ages :

Age	Jersey		Guernsey		Ayrshire		Holstein	
	Weight	Height at withers						
<i>Months</i>	<i>Pounds</i>	<i>Inches</i>	<i>Pounds</i>	<i>Inches</i>	<i>Pounds</i>	<i>Inches</i>	<i>Pounds</i>	<i>Inches</i>
Birth .....	53	25.7	65	26.6	72	27.6	90	29.1
6 .....	243	36.2	260	36.9	293	37.2	355	39.7
12 .....	450	42.2	490	43.3	538	43.2	632	46.0
18 .....	601	45.2	663	46.4	725	46.5	845	49.3
24 .....	733	46.9	818	48.0	902	48.3	1,069	51.7
36 .....	855	48.2	901	49.9	968	48.7	1,165	53.0

**Summer feeding.** Good pasture will provide all of the protein and energy nutrients necessary for yearling heifers. Irrigated pasture not grazed too closely will supply plenty of feed throughout the summer. When dry-land pasture is utilized, the condition of the heifer must be used as a guide in determining whether or not concentrates or hay should be fed. If the heifer tends to become thin, the pasture is not adequate and either hay or concentrates or both should be given. Stunting the growth is very uneconomical because it will take more feed to develop a stunted heifer than it would to produce normal growth in the first place.

**Age for breeding.** Heifers should be bred between the ages of 15 and 20 months, depending on the breed and the growth of the individual animal. Holstein heifers should be bred at 18 to 20 months and other breeds at 15 to 17 months. The average gestation period of cows being 282 days, heifers should drop their first calves between 24 and 29 months of age.

**Fitting for calving.** Three months before the heifer is due to calve, she should have an increased amount of feed to get her in good condition for freshening. If concentrates are not already being given, their feeding should be started at this time. The amount should be gradually increased to 6 to 8 pounds daily depending on the condition of the heifer. A good concentrate mixture for the growing heifer consists of equal parts of oats, barley, and wheat bran with 2 per cent each of salt and sterilized bone meal. A mixture of 50 per cent oats and 25 per cent each of barley and wheat bran with 2 per cent each of salt and sterilized bone meal may be used. The oats and barley should either be rolled or coarsely ground.

One month before calving 10 per cent of linseed oil meal should be added to the mixture, replacing that amount of oats or barley. The well-conditioned heifer will be a more profitable producer than the heifer that has been neglected, because a high-producing cow cannot eat enough to meet her requirements for some time following calving and must make up the deficiency from her body reserves.

One week before the heifer is due to calve the concentrate allowance should be reduced to 3 or 4 pounds daily. The heifer should be placed in a box stall, well bedded with about a foot of straw.

**Care at calving.** Within a few hours after the cow calves she should be offered slightly warmed water. Immediately following birth, the navel cord of the calf should be painted with tincture of iodine. The cow will usually dry off the calf. The calf should stand and nurse within 5 hours from the time it is born. It should be allowed to nurse from the cow during the first 48 hours and then be removed from the mother and taught to drink from a bucket. The cow should not be milked until 10 to 12 hours after calving, at which time about half of the milk should be removed from each quarter. On the second day she should again be milked about half dry and on the third day a little more milk may be removed at each milking. On the fourth day and thereafter if the cow is doing nicely, she should be milked dry at each milking.

**Feeding the cow.** The cow should have a liberal feed of hay at all times including the day of calving. If silage, roots, or green feed are being fed, the amount should be reduced to about one-half for the first week after the cow calves, after which it may be gradually increased to full feed. A warm bran mash may be given the cow the first day. She will do very well, however, if no concentrate is fed. On the second day the cow may be fed 2 to 4 pounds of a concentrate mixture. If the cow does well, the amount may be gradually increased from 4 pounds, beginning with the fifth day at the rate of 1 pound daily until she receives 1 pound for each 3 to 3½ pounds of milk she produces daily. The higher rate of feeding is suggested for the higher butterfat-testing breeds.

The amount of concentrates fed should be limited as long as there is considerable swelling in the udder. As this swelling reduces, the amount of feed can be increased. It is much better to go too slow in getting the cow on full feed than too fast and throw her completely off feed.

The protein content of the concentrate mixture to feed depends on whether the hay is a legume or nonlegume, the feeds available at lowest cost, and the level of production of the cow. A mixture of 360 pounds of ground barley, 250 pounds of ground oats, 250 pounds of bran, 100 pounds of linseed meal, 20 pounds of salt, and 20 pounds of bone meal should give good results when fed with good alfalfa hay or irrigated pasture. When the roughage consists of a mixed hay, such as oats and vetch, and a succulent feed or average pasture, a recommended concentrate mixture would consist of 250 pounds each of ground barley, ground oats, and wheat bran, 110 pounds of linseed meal, 100 pounds of cottonseed meal, and 20 pounds each of salt and bone meal. Cottonseed, soybean, peanut, or linseed meal may be used interchangeably, depending on the market price. If coconut meal is used, it requires a higher percentage in the mixture to keep the protein content at the same level.

**General care.** The milking cow should have free access to fresh water and salt. In bad weather the cow kept in the barn will main-

tain milk production better and will require less feed for body maintenance. The provision of comfortable quarters and a well-bedded stall will aid in keeping the cow in good health and make it easier to produce high-quality milk.

If the cow is to be milked 305 days, she should be bred 65 to 80 days after the date of calving. If it is desired that she milk 365 days, breeding must be delayed from 125 to 140 days after calving.

The cow should be given a 6- to 8-week dry period to build up body reserves for the following lactation period. The best method of drying off a cow is to simply discontinue milking. During the first day she should be stanchioned and not fed. Following this she should receive only about one-half her hay ration and no concentrates for 6 to 7 days. The udder will fill and then gradually the milk will be reabsorbed. After about 1 week concentrate feeding should again be started to get her in condition for her next calving. The cow that is well fed during the dry period, like the heifer, will produce more when she is again fresh.

**Keeping records.** A daily record should be kept of the feed consumption and the amount of milk the cow produces. It is necessary to weigh the milk to know how much concentrates to feed. The milk should be tested for butterfat each month and the butterfat production calculated. There is no way of determining the profit or loss unless accurate records are kept. Accurate breeding and calving records are also important.

**Herd management.** 4-H club members who have had several years' experience in dairy projects are usually qualified to handle several animals. They may have acquired these by purchase or by raising them in previous projects. Such members are now confronted with herd-management problems.

The first problem is to plan a feeding program for the entire year. Every effort should be made to provide the highest quality feed at the lowest cost. The first step in this direction is to obtain irrigated pasture that will provide 75 per cent or more of the necessary feed for about 6 months of the year. Hay should be harvested and stored in a way that will retain as much green color and leaves as possible. Succulent feeds, such as corn silage, kale, and roots, should be grown wherever they are profitable. Home-grown grains should be utilized in concentrate mixtures.

The second problem is the selection of a herd sire. The club member should make every effort to obtain the service of a sire that will raise the level of production of his daughters above that of their dams. It is also important that he sire good type. The sire alone contributes as much toward the future herd as all of the cows to which he is mated.