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## REARING YEARLING HEIFERS

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Yearling heifers are easy to rear; however, they do require some attention if they are to be large enough to breed at 15 months and freshen at the recommended age of 24 months. Research has proved that heifers produce more milk per day of life and have greater economic return if they freshen at about this age.

There are no short cuts to obtaining a well-developed heifer. You must start with a calf of good breeding and keep it growing and developing at an acceptable rate for the breed.

### Rate of Gain Required

Holstein and Brown Swiss calves will weigh approximately 135 pounds at six weeks of age. They must then gain an average of 1.7 pounds per day in order to weigh 800 pounds at 15 months of age and be large enough to breed.

Jersey, Guernsey, and Ayrshire calves will weigh approximately 100 pounds at six weeks of age. Jersey and Guernsey calves must gain an average of 1.3 pounds per day and Ayrshire 1.4 pounds per day to be large enough to breed at 15 months of age.

The recommended growth rate is not difficult to attain if you keep your heifers healthy and give them attention. An attack of pneumonia before weaning or before six months of age can cause damage to the lungs which will impair the heifer's growth during the yearling stage and subsequent production as a two-year old. A good calf rearing program is, therefore, essential for the development of large, growthy heifers. Heifers must make a continual and acceptable rate of growth.

A tape measure will give the approximate weight of an animal. Tape a few heifers in each group each month and check them on the growth chart to see if they are making normal growth for their age. If they get behind, you may need to supplement their ration with grain.

### Feeding Heifers in Summer

Good pasture provides nutrients to growing heifers at the lowest cost and may be available from early May to late November. Heifers may be pastured when they are about six months of age; however, they should also be fed 3 or 4 pounds of a 12-14% crude protein grain mixture and provided with supplemental hay in racks. Rumen size and function until 8-10 months of age is inadequate for heifers to maintain good growth on forage alone.

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After 10 months of age, heifers will normally make satisfactory gains on excellent pasture without any additional grain or hay. Excellent pasture is of the improved type that has been seeded and perhaps had an application of lime and fertilizer. Legume and grass mixtures are popular because they are less likely to cause bloat than a pure legume. Pure mixtures are ladino clover and orchard grass; alfalfa-orchard grass; and ladino clover-fescue.

It is easy to overestimate the quality of the pasture and the growth of heifers. Supplemental hay may be necessary if the pasture yield becomes low. Check weekly to see if enough pasture is available.

#### Dry-Lot Feeding

The cost of fencing and labor continues to increase, and there is a trend toward year-round, dry-lot feeding of heifers for the same reason as feeding milking cows. This allows one to more easily detect heat and breed by artificial insemination.

Corn silage, hay crop silage, small-grain silage and green chop are excellent forages for heifers. They should have all they can eat with the exception of corn silage and small-grain silage which may cause large bred heifers to become too fat. In this situation, the silage should be restricted to approximately 30-35 pounds, and the ration supplemented with 3 to 5 pounds per day of a 20% crude protein grain concentrate. If the concentrate is custom mixed, 20 pounds of a calcium-phosphorus mixture and 20 pounds of trace mineral salt should be added per ton of feed.

Hay will likely be the basis for many heifer rations. They can make satisfactory growth on free-choice feeding of good hay. If the hay is average to poor in quality, or is mostly grass, supplemental feeding of grain or other forages will be necessary. A combination of forages is the practice on many farms.

#### Feeding Heifers in Winter

Roughages are the cheapest source of nutrients for heifers. Good alfalfa hay harvested in the early bloom stage will have a TDN (Total Digestible Nutrient) value on a dry-matter basis of 58% and furnish most of the protein, vitamins, and minerals needed. Heifers should be given all of the hay they will eat, which is about 2 pounds of good hay or its equivalent of silage dry matter each day for each 100 pounds of their weight. For example, a 600-pound heifer will eat 2 pounds of good hay for each 100 pounds that she weighs, ( $2 \times 6 = 12$ ) or 12 pounds daily.

Heifers will eat good silage readily and can normally be fed 5 pounds per 100 pounds of body weight daily. If corn or small grain silage is fed, it will be deficient in protein, therefore, 3 to 5 pounds of a 20% crude protein concentrate should be fed daily per animal with the silage.

Suppose 15 pounds of corn silage was fed to a 600-pound heifer. Fifteen pounds of silage is equal to 5 pounds of hay. Five subtracted from the required 12 pounds leaves 7 pounds to be supplied by the hay.

It is usually necessary to feed growing heifers some grain. The amount will depend upon the quality and the amount of roughage fed. In general, if the heifers are fed the same forage fed the milking herd, the grain mixture fed the milking cows will supply an adequate amount of protein for the heifers after they are taken off the calf starter at 3 months of age. Table 1 indicates the amount of grain to feed each day according to the size of your heifer and the quality of hay that she is eating.

#### Winter Pasture for Heifers

Good pasture can provide up to 1/4 of the nutrients needed by yearling heifers during much of the winter season. Close attention must be given to make sure that it has not been grazed so short that feed is not available. A fence-line-feeder system should be installed so 3 to 5 pounds of a 12-14% crude protein grain mixture can be fed per animal daily. Supplemental hay should be fed from a rack. Corn silage is also an excellent feed for heifers and may be fed in a fence-line feeder. Pasture, if available, combined with hay and silage, may be adequate without a grain mixture if the hay is a high-quality legume. If the forage is mostly grass hay and silage, a 20% protein supplement must be fed to meet the protein requirements. Two to three pounds per animal per day may be required.

#### Complete Feeds

Some dairymen feed their milking herd a complete ration and may wish to use their mix wagon to also feed their yearling heifers. A ration containing 12-14% crude protein and 24-28% fiber is suitable.

#### Minerals and Water

A livestock mineral supplement and a trace mineral salt should be force fed in the complete ration or concentrate when the animals are confined in the counter-slope system. Twenty pounds of a calcium-phosphorus mixture and 20 pounds of trace mineral salt should be added per ton of feed.

Equal parts of salt and a calcium-phosphorus supplement should be available on a free-choice basis if they are on pasture. A trace mineral salt should also be offered on a free-choice basis.

Heifers need access to plenty of water and should be conveniently located so they do not have to walk great distances to drink. Springs and running streams are good sources.

#### Check Heifers Regularly

Heifers should be checked weekly to see if any are showing signs of illness, pink eye, ringworm, or other problems. Experience is important in noticing an irregularity of an animal at the outset. It should then be isolated and treated by a veterinarian to prevent further illness or spread of the illness to other animals.

Table 1. Pounds of Concentrates to Feed Dairy Heifers

Weight of Heifer	Quality of Hay		
	Good <sup>(1)</sup>	Fair <sup>(2)</sup>	Poor <sup>(3)</sup>
	(Pounds of Concentrate to Feed) <sup>(4)</sup>		
300 pounds	5	6	7
400 pounds	4	6	8
500 pounds	3	6	9
600 pounds to 2 months before freshening	2	4	6
Last 2 months before freshening	4	6	8

- (1) Good - Leafy, green hay that was cut early.
- (2) Fair - Hay of average quality, showing some loss of color and leaves due to late cutting or weather damage.
- (3) Poor - Late-cut mature hay or badly weather-damaged hay.
- (4) A 12-14% protein concentrate may be used if the hay is fed; a 20% protein concentrate will be needed if the major forage is corn or small grain silage.

Table 2. GROWTH STANDARD FOR DAIRY HEIFERS

