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Keown, Jeffrey F., "G86-819 At What Weight Should Holstein Heifers Freshen?" (1986). *Historical Materials from University of Nebraska-Lincoln Extension*. 507.

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At What Weight Should Holstein Heifers Freshen?

Jeffrey F. Keown, Extension Dairy Specialist

This guide offers research findings on the appropriate weights for Holstein heifer freshening and suggests producers be aware of economic considerations involved in heifer freshening.

Most producers realize that the weight of a heifer at freshening affects the amount of milk produced during the first lactation. Heifers not fed balanced nutritional diets before freshening will not produce at an optimum level since they do not have the body reserves to maintain peak production. Likewise, a heifer that freshens very heavy will not produce as much as she should because she is too heavy. There must be a break-even point at which a heifer should weigh to optimize first lactation production.

A research project was conducted by Keown and Everett at Cornell University where the weight of heifer freshenings were compared with first lactation production. The 618,366 heifers, from New York and New England, had their tape measure body weights recorded on the first test date after freshening. These measurements were recorded to the nearest 10 lb. These weights were recorded after freshening so the effect of the weight of the calf is not included.

Table I lists the average weight at first test date after freshening and the increase in milk production associated with each 50 lb. increase in weight. Those heifers that freshen from 901-950 lb. produce 432 lbs. more milk than those that freshen at 900 lbs. or less. Likewise, a heifer that freshens between 1201 and 1250 lbs. of weight produces 1777 lbs. more milk than one freshening at less than 900 lbs.

The difference in milk production for each 50 lb. difference in body weight increases until a heifer is between 1201-1250 lbs. After the 1250 lb. point, the increases are not as great. At weights beyond 1450 lbs., milk production actually begins to decrease.

Table I. Relationship between the weight after freshening of Holstein heifers and first lactation milk production.

<i>Weight at First Test (in lbs.)</i>	<i>Increase in First Lactation Milk Yield (lbs.)</i>
≤ 900 lbs.	0
901 - 950	432
951 - 1000	698
1001 - 1050	935
1051 - 1100	1194
1101 - 1150	1250
1151 - 1200	1566
1201 - 1250	1777
1251 - 1300	1818
1301 - 1350	1949
1351 - 1400	1989
1401 - 1450	1999
> 1450	1945

A producer raising Holstein heifers should aim for a weight at first test day of between 1200-1250 lbs. if milk production is to be maximized. Raising heifers that weigh more than this cannot be justified in the extra milk production produced for the 50 lb. increase in body weight.

In our study the records were all adjusted for the herd year in which the cow freshened to compensate for any differences in yearly herd practices. These records were also adjusted for the age and month of freshening so the weight of freshening influence could be dealt with separately. In fact, additional analysis of the data showed that the weight at which a heifer freshens has more influence on the milk produced than the age and month of freshening. Given this information, a producer should breed Holstein heifers by weight so they weigh, after freshening, near 1200 lbs.

A heifer being fed a good, balanced ration should be expected to gain 1.5 lbs. daily during the gestation period. Therefore, a good rule of thumb would be to breed your Holstein heifers between 800 and 850 lbs. of weight. This, coupled with a good feeding program, should see your Holstein heifers freshening near the 1200-1250 lb. range.

Custom Rearing Guidelines

The production presented in Table I are becoming more important as herd size increases in the United States and profit margins are squeezed. With the ever-expanding use of custom growers for raising heifers, this table should be used as a guide to be certain that the growers are properly feeding and managing heifers to enter the milking herd at optimum condition. The extra milk produced by raising heifers properly can make a significant difference in the first lactation, thereby increasing net returns and profit to the dairy operation. Why not add the information presented in this table to your incentive program when raising heifers? A deduct could be included if they do not meet these guidelines.

Conclusions

Given the cost of grain, each producer needs to calculate the cost benefit ratio of raising heifers to freshen at different weights. Regardless of the cost, the initial rearing of a heifer to an acceptable weight is money well invested. A stunted heifer will never reach her maximum potential. Proper feeding, housing and veterinary care of heifers is an essential part of any dairy enterprise. Research shows that Holstein heifers that give the most milk freshen between 1200-1250 lbs. of weight.

Index: Dairy, Herd Management

Revised October 2005

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