
The North American Piedmontese Cattle Association - NAPA

FRAME SCORES IN BEEF CATTLE

(Adapted from the BIF Guidelines for Uniform Beef Improvement Programs)

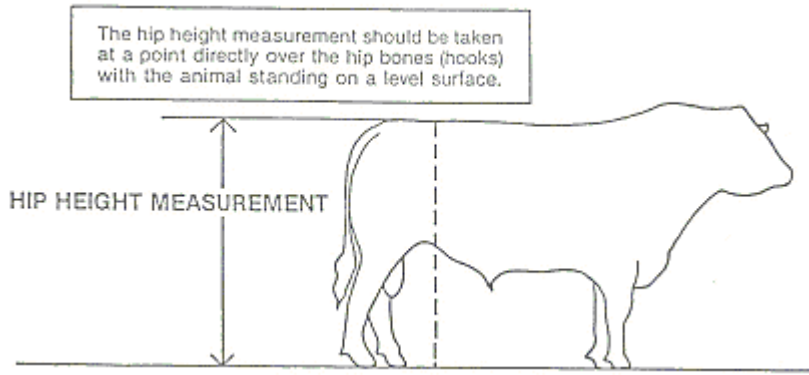
Measurements for height have been used as a descriptive supplement in many herd testing programs. Adjusted weights and weight ratios accompanied by linear measurements for height have added another dimension to evaluating fat-lean ratio of an individual animal in a performance program. No one frame size for an animal will be best for all feed resources, breeding systems, and markets. Long-term economic return should determine the optimum frame-size range within a given set of resources, breeding system, and market specifications.

Frame score is a convenient way of describing the skeletal size of cattle. With appropriate height growth curves, most animals should maintain the same frame score throughout their life, while their actual height increases with age. This allows one frame score value to be used regardless of when the animal was evaluated. However, the frame score will change for animals that mature earlier or later compared with average animals.

Environmental factors can also alter an animal's growth performance. Nutritional level is a major factor. Cattle that do not receive adequate nutrition will be below average in growth rate, while cattle fed extremely high levels will grow faster.

The recommended site for linear height measurement is a point directly over the hooks (see figure). This measurement is adjusted to production end points at 205 days and 365 days (within BIF ranges currently used for adjusted weights.)

It is recommended that the actual hip height and adjusted hip height be printed in the National Cattle Evaluation rather than height ratio.



Height Measurement

Appropriate height growth curves must take into consideration differences in growth rate that exist between small- and large-frame cattle. The accompanying tables give current estimates of cattle height, along with adjustment equations for bulls, heifers and cows.

Bull Hip Height (inches) Frame Score for Ages 5 to 21 Months

Age in Months	1	2	3	4	5	6	7	8	9
5	33.5	35.5	37.5	39.5	41.6	43.6	45.6	47.7	49.7
6	34.8	36.8	38.8	40.8	42.9	44.9	46.9	48.9	51.0
7	36.0	38.0	40.0	42.1	44.1	46.1	48.1	50.1	52.2
8	37.2	39.2	41.2	43.2	45.2	47.2	49.3	51.3	53.3
9	38.2	40.2	42.3	44.3	46.3	48.3	50.3	52.3	54.3
10	39.2	41.2	43.3	45.3	47.3	49.3	51.3	53.3	55.3
11	40.2	42.2	44.2	46.2	48.2	50.2	52.2	54.2	56.2
12	41.0	43.3	45.0	47.0	49.0	51.0	53.0	55.0	57.0
13	41.8	43.8	45.8	47.8	49.8	51.8	53.8	55.8	57.7
14	42.5	44.5	46.5	48.5	50.4	52.4	54.4	56.4	58.4
15	43.1	45.1	47.1	49.1	51.1	53.0	55.0	57.0	59.0
16	43.6	45.6	47.6	49.6	51.6	53.6	55.6	57.5	59.5
17	44.1	46.1	48.1	50.1	52.0	54.0	56.0	58.0	60.0
18	44.5	46.5	48.5	50.5	52.4	54.4	56.4	58.4	60.3
19	44.9	46.8	48.8	50.8	52.7	54.7	56.7	58.7	60.6
20	45.1	47.1	49.1	51.0	53.0	55.0	56.9	58.9	60.9

21	45.3	47.3	49.2	51.2	53.2	55.1	57.1	59.1	61.0
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The following equation should only be used for bulls between the ages of 5 and 21 months: Frame Score = -11.548 + 0.4878 (Ht.) - 0.0289 (Days of Age) + 0.00001947 (Days of Age)² + 0.0000334 (Ht.) (Days of Age).

Mature Bull Hip Height (inches) Frame Score

Age in Months	1	2	3	4	5	6	7	8	9	10	11
24	46.4	48.3	50.3	52.3	53.9	56.0	58.0	60.0	62.0	64.0	66.0
30	47.3	49.3	51.3	53.2	54.9	57.0	59.0	61.0	63.0	65.0	67.0
36	48.0	50.0	51.9	53.8	55.5	57.5	59.5	61.5	63.5	65.5	67.4
48	48.5	50.4	52.3	54.1	55.9	58.0	60.0	62.0	63.9	65.8	67.7

Heifer Hip Height (inches) Frame Score for Ages 5 to 21 Months

Age in Months	1	2	3	4	5	6	7	8	9
5	33.1	35.1	37.2	39.3	41.3	43.4	45.5	47.5	49.6
6	34.1	36.2	38.2	40.3	42.3	44.4	46.5	48.5	50.6
7	35.1	37.1	39.2	41.2	43.3	45.3	47.4	49.4	51.5
8	36.0	38.0	40.1	42.1	44.1	46.2	48.2	50.2	52.3
9	36.8	38.9	40.9	42.9	44.9	47.0	49.0	51.0	53.0
10	37.6	39.6	41.6	43.7	45.7	47.7	49.7	51.7	53.8
11	38.3	40.3	42.3	44.3	46.4	48.4	50.4	52.4	54.4
12	39.0	41.0	43.0	45.0	47.0	49.0	51.0	53.0	55.0
13	39.6	41.6	43.6	45.5	47.5	49.5	51.5	53.5	55.5
14	40.1	42.1	44.1	46.1	48.0	50.0	52.0	54.0	56.0
15	40.6	42.6	44.5	46.5	48.5	50.5	52.4	54.4	56.4
16	41.0	43.0	44.9	46.9	48.9	50.8	52.8	54.8	56.7
17	41.4	43.3	45.3	47.2	49.2	51.1	53.1	55.1	57.0
18	41.7	43.6	45.6	47.5	49.5	51.4	53.4	55.3	57.3
19	41.9	43.9	45.8	47.7	49.7	51.6	53.6	55.5	57.4
20	42.1	44.1	46.0	47.9	49.8	51.8	53.7	55.6	57.6

21	42.3	44.2	46.1	48.0	50.0	51.9	53.8	55.7	57.7
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The following equation should only be used for heifers between the ages of 5 and 21 months: Frame Score = - 11.7086 + 0.4723 (Ht.) - 0.0239 (Days of Age) + 0.0000146 (Days of Age)² + 0.0000759 (Ht.) (Days of Age).

Mature Cow Hip Height (inches) Frame Score

Age in Months	1	2	3	4	5	6	7	8	9	10	11
24	43.1	45.0	46.9	48.8	50.7	52.5	54.5	56.4	58.2	60.1	62.0
30	43.8	45.8	47.5	49.4	51.3	53.1	55.1	57.0	58.9	60.8	62.5
36	44.2	46.1	48.0	49.8	51.8	53.6	55.5	57.2	59.2	61.0	62.8
48	44.6	46.5	48.2	50.0	52.0	53.9	55.8	57.5	59.4	61.2	63.0

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Questions ? Email appaloosa@sasktel.net