FRAME SCORE

Successful producers of any product understand the importance knowing their customers' needs. Additionally, a successful production scheme includes product specifications and quality controls to ensure that the product is meeting, or exceeding, the customer expectations.

In seedstock beef production, one of the simplest and often overlooked methods of ensuring that the product (breeding cattle) will meet the needs of the customer (commercial producer / feeder / packer) is frame score.

Frame scores are not exact, nor are they absolutes, but they are an efficient way to help us maintain a commercially viable product. Large frame cattle are associated with larger birth weights, delayed sexual maturity, harder doing females, and less than optimal quality grades, while small frame cattle are associated with small birth weights, early maturity, excessive back fat at lighter weights, and better than average quality grades.

The great thing about EPDs is that they work. Most seedstock producers have successfully made use of EPDs to increase growth. However, the dangerous thing about EPDs is that they work. We have all witnessed cases where the unending quest for more, in terms of growth EPDs, created cattle that were too big for the industry's needs. The use of frame scores allows for continued selection for growth without creating oversized cattle. Setting an upper limit on frame score, then selecting for higher growth EPDs is a simple and sensible quality control measure for beef seedstock producers. Where should that upper limit on frame size be set? That is a question for each seedstock producer to answer for himself.

The following description of frame scores was adapted from the Beef Improvement Federation Guidelines for Uniform Beef Improvement Programs. The language is a bit technical, but it is a subject worth a little deeper study:

Hip height converted to frame score is a linear measurement that helps cattle producers to evaluate lean-fat ratio potential of an individual animal in a performance program. No one frame size will be best for all feed resources, breeding systems, and markets. Large-framed animals tend to be heavier at all weights, leaner, later maturing and have higher nutrient requirements. Small framed animals tend to be lighter, fatter, earlier maturing and have reduced nutrient requirements. Frame scores can be monitored to maintain body size, fatness level, and maturing rate within the optimum ranges dictated by the resources, breeding system, and market specifications of a herd.

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, regardless of when they are evaluated. However, frame scores may change for animals that mature earlier or later than average for their breed.

The recommended site for hip height measurement is a point directly over the hooks. This measurement should be adjusted to a yearling age endpoint of 365, 452 or 550 days. The same age range guidelines as for yearling weights should be used. It is recommended that the actual hip height and adjusted hip height be printed in national cattle evaluations rather than the height ratio.

Hip Height Measurement

The following tables give current estimates of cattle height, along with adjustment equations for bulls and heifers. Values for steers are not available; however, bull height estimates may be used as approximations for steers.

Hip Heights (inches) and Frame Scores for 5-21 Month-Old Bulls

Age	Frame Score								
(months)	1	2	3	4	5	6	7	8	9
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	56.2	48.2	50.2	52.2	54.2	56.2
12	41.0	43.0	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

Frame Score = -11.548 + (0.4878 x Ht) – (0.0289 x Age) + (0.00001947 x Age^2) + (0.0000334 x Ht x Age), where Age = days of age.

Hip Heights (inches) and Frame Scores for Mature Bulls

Age	Frame Score										
(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	52.0	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

Hip Heights (inches) and Frame Scores for 5 - 21 Month-Old Heifers

Age	Frame Score								
(months)	1	2	3	4	5	6	7	8	9
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	56.1	48.0	50.0	51.9	53.8	55.7	57.7

Frame Score = -11.7086 + (0.4723 x Ht) – (0.0239 x Age) + (0.0000146 x Age2) + (0.0000759 x Ht x Age), where Age = days of age.

Hip Heights (inches) and Frame Scores for Mature Cows

Age	Frame Score										
(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