Frame scoring of beef cattle

The height of a beef animal at a given age can be used as a measure of its maturity type, or growth curve potential. It allows the breeder to determine where an animal best fits into a breeding program; whether, for example, the bull is better suited to producing vealers or steers. Height can be used to predict the growth and fattening pattern of a beast, as well as its mature size, and can be a helpful adjunct to other performance records when selecting replacement breeding stock.

A convenient way to discuss and evaluate height is in units of "frame score" based on the height over the hips at a given age.

HOW TO EVALUATE BODY TYPE

Body type (size of frame) scores are made on 1 to 9 basis, as shown in figure below, from the smallest up to largest types of cattle. These body type scores were developed at the University of Wisconsin in the U.S.A. and are applicable to all breeds of cattle. Most British breeds (Angus, Hereford and Shorthorn) will fall in the 1 to 5 range, and non-British breeds such as Charolais, Simmental, Chianina, Maine-Anjou and Limousin will generally be from 5 to 9. A score of 9 is not to be interpreted as the best; it merely indicates the largest type of cattle.

BODY TYPE SCORE

1. Very, small framed
Extremely short in every, dimension of skeletal development, short legged and short bodied; generally show a tendency towards waste; usually show good muscle expression; early maturing; lack rapid growth potential.

2. Small framed
Not as extreme as body type 1, but short in skeletal and muscle dimensions; small mature size.

3. **Below average size**
Slightly, smaller in skeletal dimensions than average: average muscle expressions for British breed cattle; represents about the average of British breeds and the smallest non-British-breed cattle.

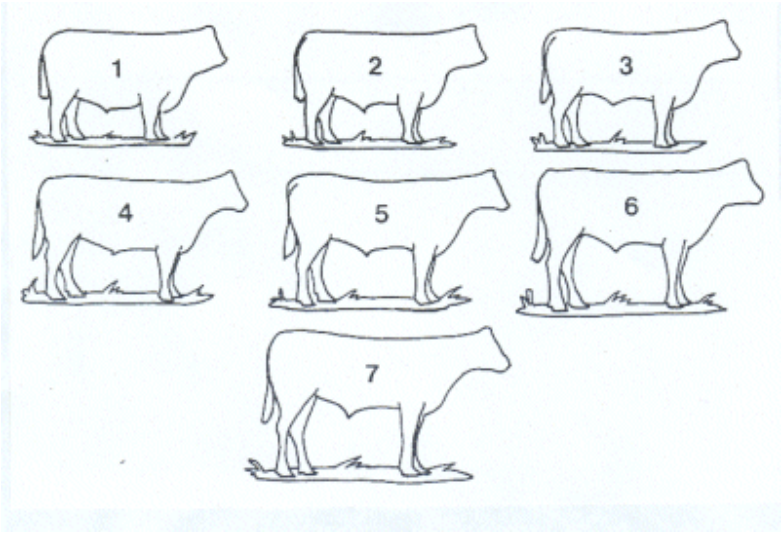
4. Average skeletal size
Medium in size, neither extremely small nor large, ample length of body: average bone and muscle length and growth potential, average size when mature.

5. Above average size
Slightly larger in skeletal dimensions than average: long boned: represents the largest British-breed cattle and is about average for non British breeds and crosses: long muscled, represented by additional length of muscle attachment in forearm and long, deep stifle muscling.

6. Large framed
Larger more "growthy" cattle: long bodied and long legged: should have longer, smoother muscling than average, large mature size.

7. Very large framed

The longest and tallest animals in all dimensions; represents the largest non-British-breed cattle; very long boned and long muscled; muscling is smooth and lacking in expression; generally of rapid growth potential; very large mature size; late maturing; may appear less mature than smaller body type cattle of the same age.



FRAME TYPE-GROWTH AND FATTENING RELATIONSHIPS

Because the height or "frame" of cattle of a given age is closely related to its maturity type, the information can be used to categorize or classify the live animal, based on its growing and fattening pattern.

Large framed and small framed cattle grow at a fairly similar rate until they, reach physiological maturity (the stage of growth when fattening begins).

The smaller framed cattle reach that point at an earlier age and lighter weight than large framed cattle. As the smaller framed cattle slow down in growth and begin to fatten the larger framed cattle continue growing for a while before they begin to fatten.

This means that, within a breed, large framed cattle grow more efficiently (as measured by gain per day) to a given weight than smaller framed cattle. At any given weight, large framed cattle will be younger and a little leaner than their small framed counterpart. At the same age they will be heavier but have similar fat depth as the small framed cattle. (See the graph.)

Therefore. you can change the market weight to fatness relation of the cattle you produce by using bulls of different frame types. For example, a producer who finds that his sale cattle get too fat before they reach the optimum weight can "stretch out" and "trim up" future progeny by using a large framed bull, that is, a later maturing type.

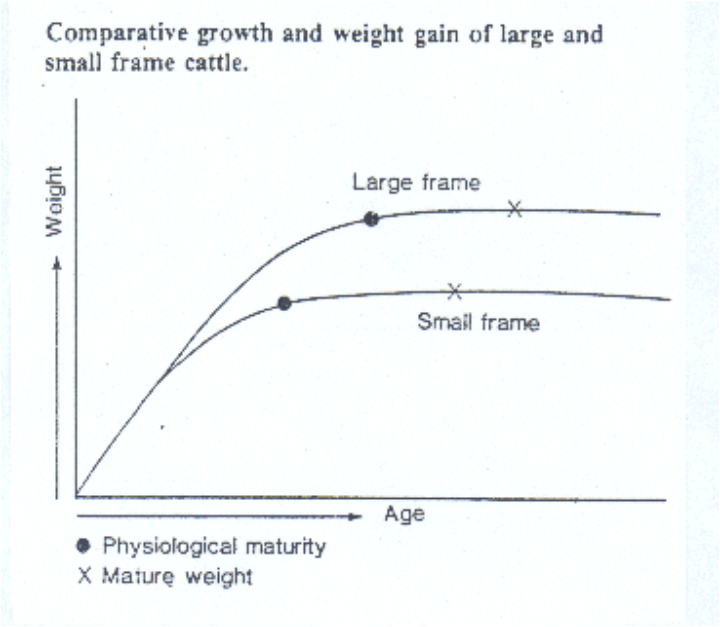
Table 1. Males frame scores based on height measurement at hip (cm)

Age in Months	Frame Score								
	1	2	3	4	5	6	7	8	9
5	86	91	97	102	107	112	117	122	127
6	89	94	99	104	109	114	119	124	129
7	91	97	102	107	112	117	122	127	132
8	94	99	104	109	114	119	125	130	135
9	97	102	107	112	117	122	127	132	137
10	100	104	109	114	119	124	130	135	140
11	102	107	112	117	122	127	132	137	142
12	103	109	114	119	124	130	135	140	145
13	105	110	116	121	126	131	136	141	146
14	107	112	117	122	127	132	137	142	147
15	108	113	118	123	128	133	138	143	147
16	109	114	119	124	130	135	140	145	150
17	110	116	121	126	131	136	141	146	151
18	112	117	122	127	132	137	142	147	152

Table 2. Females. Frame scores based on height measurement at hip (cm)

Age in Months	1	2	3	4	5	6	7	8	9
5	86	91	96	101	106	111	116	121	126
6	88	93	98	103	108	113	118	123	128
7	90	95	100	105	110	115	120	125	130
8	91.5	96.5	101.5	106.5	111.5	116.5	121.5	126.5	131.5
9	93	98	103	108	113	118	123	128	132
10	95	100	105	110	115	120	125	130	135
11	97	102	107	112	117	122	127	132	137
12	99	104	109	114	119	124	129	134	139
13	101	106	111	116	121	126	131	136	141
14	102	107	112	117	122	127	132	137	142
15	103.5	108.5	113.5	118.5	123.5	128.5	133.5	138.5	143.5
16	105	110	115	120	125	130	135	140	145
17	106	111	116	121	126	131	136	141	146
18	107	112	117	122	127	132	137	142	147
24	110	115	120	125	130	135	140	145	150
Mature - Calve 2 yr.	112	117	122	127	132	137	142	147	152
- Calve 3 yr.	114	119	124	129	134	139	144	149	154

Comparative growth and weight gain of large and small frame cattle.



WHAT FRAME TYPE IS BEST?

There is no best frame type, and the biggest are not necessary the best; but they are better suited to a specific production goal.

The most appropriate frame type for your beef enterprise will depend on the type of country you have and the market you are aiming at.

For example:

* Early maturing types (frame sizes 2 and 3) are small in skeleton, reach a small mature size, fatten at light weights (less than 350 kg liveweight) and produce progeny suited for the lightweight local trade.

* Mid-maturing types (frame sizes 4 and 5) are medium to large British breed cattle, having a trimmer, longer outline than the early maturing types. The mid-maturing types fatten at about 350 to 450 kg liveweight and produce progeny suited for light local trade, supermarket steers, yearlings and heavy steers - depending on environment.

* Late maturing types (frame sizes 6 - 9) are very large framed, leggy cattle with fast growth rate potential. They fatten at heavier weights (450 kg+) than the early and mid-maturing types and are best suited for the production of yearlings, steers and bullocks.

Environmental effects on frame size

Comparison between animals for any measurement is more meaningful where the animals being compared have been reared under similar environmental conditions.

However, height of cattle at a given age is less influenced by nutrition than by differences in weight. United States experience indicates that environment would account for differences of only 2 to 3 cm between individuals of the same age run under different environments (but not including extreme nutritional stress conditions).

The figures in Tables 1 and 2 are adjusted data based on age/height relation studies at the Universities of Missouri and Wisconsin, U.S.A.

Heights of heifers are generally less than heights of bulls of the same age by 1 to 2.5 cm at 6 months, 2 to 5 cm at 8 months, and 5 cm at 12 months and over. Because of this use Table 2 figures for assessing female cattle.