

Body Condition Score Breeding Values for Beef Cows

Guidance for breeders recording Body Condition Score to generate breeding values in B+LNZ's across-breed genetic evaluation.



This resource has been put together for stud breeders to explain why a beef Body Condition Score (BCS) breeding value is being introduced to nProve, what breeders need to record, and how to do it.

Cow weight matters - and it's under measured

Cow weight is an important economic driver, acting as a proxy for both feed requirements and cull cow carcass value. Despite being low-cost and easy to measure, it remains under-recorded across the industry.

Fat depth EBVs are not a good stand-in for cow condition

Many breeders and bull buyers have been using fat depth EBVs as a proxy for cow BCS, but research, including findings from the Beef + Lamb New Zealand (B+LNZ) Beef Progeny Test, show this isn't reliable, with only about 25% correlation between fat depth in young animals and BCS in mature cows. This means that selecting on fat depth EBVs to improve condition score will add a lot of fat to carcasses for only a small improvement in condition score. It is more effective to measure BCS directly in cows.

Combining Weight + BCS + Hip Height gives a truer picture of cow type

Cow weight alone does not give the best description of the type of cow breeders are aiming to achieve. A heavier cow could either be tall and slabby, or moderate-framed and carrying good condition (muscle and fat). Most breeders prefer the latter. Combining weight with BCS and hip height, provides a more complete and accurate description of an animal. Ideally, weight, BCS and hip height would be measured at the same time, but this is not essential.



What to record

- ✓ **Cow Liveweight** - Required for Breedplan submission. Refer to Breedplan guidelines for their measurement recommendations.
- ✓ **Body Condition Score (BCS)** - 1-10 scale (will typically see 4-9 commercially). Half scores (e.g. 6.5) accepted.
- ✓ **Hip Height** - Measured in cm units. A simple and accurate measure of skeletal frame size.

Remember to record all other relevant information alongside these measurements, including the date of measurement and management mobs.

When to record

Research shows BCS and hip height are consistent traits year-round at the genetic level, even though actual BCS will fluctuate with the season. This means they can be measured at any time. Best practice is to record weight, BCS and hip height at the same time, although it is not essential.

Breedplan requirements

Cow weight needs to be collected within Breedplan's post-weaning timeframe, which makes weaning the most practical point to capture all three traits together.

Acceptable alternatives

Weight can be measured at weaning (as required for Breedplan), and BCS and hip height can be recorded at a different time - such as pre-calving or pre-mating - if that suits the farm system better.

Which animals to record (ages)

Body Condition Score	Only meaningful once the animal is a cow and has calved (at least 2 years old). Accuracy of EBVs improve with at least two measurements , ideally: <ul style="list-style-type: none">• as a 2-year-old cow.• again at 3 years.• could also do whole-herd if desired.
Hip Height	Cows continue growing in height until 4-5 years of age, but: <ul style="list-style-type: none">• A 2-year-old measure is a strong indicator.• Accuracy improves further with a second measure at 3 years. Yearlings: could be measured and would give a good early prediction of mature cow height. <ul style="list-style-type: none">• Measure hip height at the same time as 400-day weight.• No need for BCS at this age due to limited variation.
Cow Weight	Follow Breedplan recommendations - analysis will continue as per current breed society arrangements. <ul style="list-style-type: none">• Typically on 2 and 3 year olds.• Breedplan accepts cow weight measured within 2 weeks of her calf's 200-day weight.

How to measure

Body Condition Score (BCS)

Use the NZ 1-10 scale. The scale is designed to include welfare assessment, and BCS will typically range from 4 (very poor) to 9 (approaching obese), depending on the time of year. Half scores are acceptable - e.g. 6.5

USEFUL RESOURCES

- WATCH: video demonstrating how to measure BCS
- READ: Beef Cow Body Condition Scoring book
- READ: Beef Cow Body Condition Fact Sheet (summarised version of book)



Visit beeflambnz.com and search “Cow BCS”

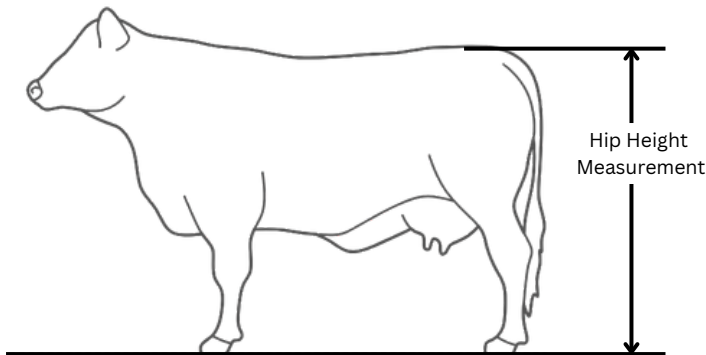
Hip Height

Best practice method:

While measuring techniques vary, it's important to use a consistent technique for the group. Animals should be stationary and standing on level ground when recording.

A recommended technique is to attach a level board horizontally, or mount a tape measure on the crush at a known height. With the animal standing in a good posture, measure the distance in centimetres from the board down to the hook bone. Record the reading.

Subtract the distance from the known fixed height to get the animal's hip height.



Scan QR code to watch a video measuring hip height

Other options:

A ruler/scale behind the animal in the crush can be used, and a visual reading of hip height recorded, but it is prone to parallax error.

A sliding level ruler, which consists of a vertical ruler and a perpendicular (horizontal) arm is also a common tool, but can be difficult and less accurate than measuring tape.

Recording levels (Good → Better → Best)

Entry Level

- All 2-year-old cows measured for Weight + BCS + Hip Height at weaning.

Silver Standard

- All 2 and 3-year-old cows measured for Weight + BCS + Hip Height at weaning.
- Heifers measured for hip height at ~400 days.

Gold Standard

- All cows measured for Weight + BCS + Hip Height at weaning.
- Usual mob recording applies.
- Heifers and bulls measured for hip height at ~400 days, before bulls are sold. (scanning is a good time).

Submitting the Data

Weights are submitted to Breedplan (as normal). BCS and Hip Height will be analysed independently. All data should be submitted to your breed society database.

