Difficult calving costs - both directly and indirectly, particularly if you cost your time into the equation. Labour and veterinary costs in attending to difficult births is an up-front cost, but like the proverbial “tip of the iceberg” is only the small part of a bigger cost.

There is the profit fore-gone on dead calves and heifers which is a blow to next years balance sheet, but research has shown another hidden cost that can affect herd profitability over the longer-term. About 20% of cows that have assisted births will not conceive again, and those that do rebreed will generally conceive later in the joining period, and will have late season calves for the rest of their breeding life.

Calving problems have been around a long time – carvings in Egyptian tombs dating back to 2000 BC depict cows being assisted at birth. This tells me that whatever we have been doing about reducing calving problems over the last few thousand years hasn’t been very effective!

Why - we haven’t been tough enough with our selection and culling. I bet the Egyptian in the rock carving scene kept both the cow and the assisted calf for future breeding – if so, that’s where the problem started. We need to select replacement breeders, both male and female, on their ability to be born unassisted, and avoid or remove those animals that give us grief.

Going back to basics, what causes the problem? Apart from abnormal presentations, the answer is fairly straight-forward. Either the calf is too big for the cow’s pelvis or the cow’s pelvis is too small for the calf. So our efforts have generally been directed towards getting a bigger pelvis or a smaller calf. Both methods are flawed.

Selecting for larger pelvic area will increase pelvic area in future generations. So far, so good. However few people measure pelvic area, rather relying on visual estimation of the external pelvic dimensions to predict the internal area. Research shows us that there is a very low correlation between internal and external pelvic measurements, so your cows might be getting bigger hips but not necessarily a bigger internal pelvic area. Research also shows us that if you do increase internal pelvic area, the cow will carry a bigger calf to fill it.

Not a lot of gain selecting for measured pelvic size it seems, but the practice can be useful in high risk herds for identifying and culling heifers with very small pelvises.

Next, we can select for smaller calves, and here the water gets a bit muddied - birth weight or calf shape?

Research tells us that birth weight is the single most important cause of calving problems.
Analysis of some 160,000 Australian Hereford calving ease scores revealed that the average birth-weight of non-assisted calves was 39 kg, calves requiring moderate assistance averaged 41 kg and calves requiring traction or veterinary assistance (but excluding malpresentation) averaged 45.5 kg. A clear message here.

Conventional wisdom would tell us to select for low birth weights—a win one, lose one situation. Because birth weight and later growth are genetically correlated traits, when you select for low birth weight you are indirectly selecting for low growth rate.

Progeny of low birth weight sires are generally easy born, however this needs to be balanced against the fact that the resulting easy born heifer calves will be smaller at calving, with smaller pelvises, and therefore more likely to have increased calving problems when they calve—that is why Breedplan gives you two Calving Ease EBVs, direct (sire effect on calving ease of his progeny) and maternal (sire effect on daughters ability for easy calving) so that you can avoid a possible conflict of these two independent traits.

There are two issues here.

1. keeping the lid on birth-weight is sensible. I prefer to use birth-weight EBVs to avoid high birth weights rather than to select for low birth weights. Selection of the fittest requires that some selection pressure be applied, and it is reasonable to expect that a well grown heifer should be able to calve unassisted to a breed average birth-weight bull.

2. there are some individual animals that haven’t read the text book and therefore don’t follow the rules of genetic association. These animals have a genetically low birth-weight and a genetically high growth rate. These are known as curve-benders, they are out there, albeit in small numbers, and the only way you will find them is to weigh calves at birth and at 400/600 days of age and have the data converted into Birth Weight EBVs.

You can get birth-weight EBV as a correlated trait calculated from post-birth growth alone but these EBVs are of lower accuracy than EBVs calculated directly from measured birth weight, and they will not pick up the curve-benders—there is no option but weigh the calves at birth.

Next on the list is calf shape. There is certainly some credence that calf shape is an important factor in the calving ease story. Although the fact has never really stood up to scientific scrutiny there can be significant sire differences in calf shape relative to birth weight.

Some of my records show the effect of sire difference most markedly. In one field trial the progeny of Sire A had an average birth weight of 42 kg and measured 76 cm around the chest girth, whilst the progeny of Sire B also averaged 42 kg birth weight but measured 80 cm around the chest girth, that is, the calves were a bit shorter and thicker. Heifers would be at more risk calving to sire B than to sire A.

However selecting for predicted calf shape appears a fallible skill, at least some of the time. Again it is a case of avoiding extremes—certainly you need to avoid those short bodied, thick/straight shouldered sires, or those big raw-boned sires, but my records show that even if you are working in mainstream there can be a big difference in calf shape/weight relationship between progeny of the same sire—a mixture of genetic variation and the dam effect.

Too often we forget that the dam contributes 50% of the genes that will influence birth weight, calf shape and calving ease. I often raised eyebrows in veterinary assistance (but excluding malpresentation) averaged 45.5 kg. A clear message here.

This “survival of the fittest” regime works well within herd but you can run into problems when introducing sires from outside herds—you might be introducing a few wild cards that you don’t know about, unless you have a means of predicting the relative calving ease of the sires you introduce.

The good news is that you can—if you are buying your bulls from a breeder who is recording calving ease scores.

If the bull breeder records calving ease scores in his herd, Breedplan can calculate Calving Ease EBVs (both direct and maternal).

So, is it all doom and gloom, or can we better the odds of our Egyptian cowboy?
These EBVs give an estimate of the difference that you can reasonably expect in the calving ease of a sire’s progeny compared to other sires or the breed average, when run under similar circumstances.

Calving ease score can be recorded at birth using a 1 to 5 scale…

1. non assisted – observed or noting unassisted calved cows *
2. assisted – easy pull (one person without mechanical assistance)
3. assisted – hard pull (2 people or 1 with mechanical assistance)
4. assisted – veterinary assisted
5. mal-presentation, breech etc.

*Note - if this score is left blank, it is recorded as non-observed and the information is not used in the analysis.

For the purpose of calculating the Calving Ease EBV, scores 3 and 4 are grouped together, and score 5 is excluded from the analysis as these problems are considered non-genetic in origin.

Calving Ease EBVs are reported in percentage terms, with positive EBVs meaning more easy calving, and negative EBVs meaning less easy calving. The trait is reported as two EBVs…

Calving Ease EBVs are reported in percentage terms and given as…

- **Calving Ease (direct)** – an estimate of the difference in ability of a sire’s calves to be born unassisted from 2 year old heifers, compared to breed average and all other conditions being equal.
- **Calving Ease (maternal)** – an estimate of difference in the ability of a sire’s two year old daughters to calve without assistance, compared to breed average and all other conditions being equal.

For example; if Bull A has CE (direct) of -2% and Bull B has CE (direct) of +4%, the progeny of Bull A is expected to require 3% more assisted births than the progeny of Bull B from two year old heifers managed similarly (half the 6% difference between the two bulls).

In calculating the calving Ease EBV, Breedplan also uses Birth Weight and Gestation Length information where available – like all EBVs, the more information you have, the better is the estimate that you get.

Using modern jargon, it is time for affirmative action if we are to get on top of calving problems. That 4000 year old technology needs a serious update.

If you want to help yourself, help your clients and help the breed, then you should be measuring Calving Ease in your herd.

“Use the EBVs ~ Not just report them”

Jack Allen Technical Director, ABRI, Armidale, Australia.

For the purpose of this exercise, let’s ignore for the moment the people who want EBV’s to sell animals and concentrate on those who want EBV’s to select animals. They are not, and should not be, mutually exclusive categories. Unfortunately, there is not 100% coverage either.

Estimated Breeding Values (EBVs) for growth traits have been available in most countries since the mid 1980’s. Over time the range of traits that have EBVs calculated has expanded. In all cases, the need for the EBV is driven by economics. To include a trait in a genetic analysis, the trait:

- needs to be able to be measured,
- show variation among the measured animals
- some of this variation is shown to be passed from one generation to the next (i.e. hereditable),
- must have some economic importance.

Unless a new trait meets all of these criteria, there is no point collecting or analyzing the data from a genetic evaluation perspective. Should we have an EBV for left ear length just because we could? Similarly, we don’t need an EBV to state the obvious – eg selecting polled animals with a black coat color.

Over the last 20 years, new EBVs have been