Conformation: Update of the breeding goal for frame and udder

The composite traits for conformation are derived from the breeding values for the linear traits, and represent the breeding goal. When the breeding goal changes, it is relatively easy to change the formula of the composite traits, comparable with changing the NVI. Every five years the breeding goals are re-evaluated with the members of the herdbook, and for conformation this resulted in adjustments for frame and udder.
The changes in the breeding goal has to result in the desired type of cow for the coming 5 to 10 years.

The breeding goals for frame and udder are adjusted, and are described as follows:
Frame: A cow that is in her whole body a bit bigger than the current cow, except for stature. Also the cow needs to be more balanced regarding, height, width and depth. This is a cow that is wider in the front, with more capacity, and a more sloped and wider rump. Cows should not get bigger, but also not smaller.
Udder: A cow with a stronger attached and a shallow udder, with a higher rear udder and stronger udder support, of which both front and rear teats do not have to be placed more narrow and rear teats can be placed even wider, and teats do not have to be longer or shorter.
For dairy strength and feet and legs no adjustments are made, and for dual purpose no changes are made in any of the composite traits.

Why are frame and udder changed?

When setting the new breeding goal, changes were necessary to breed the desired type of cow. For frame there was the wish to take into account

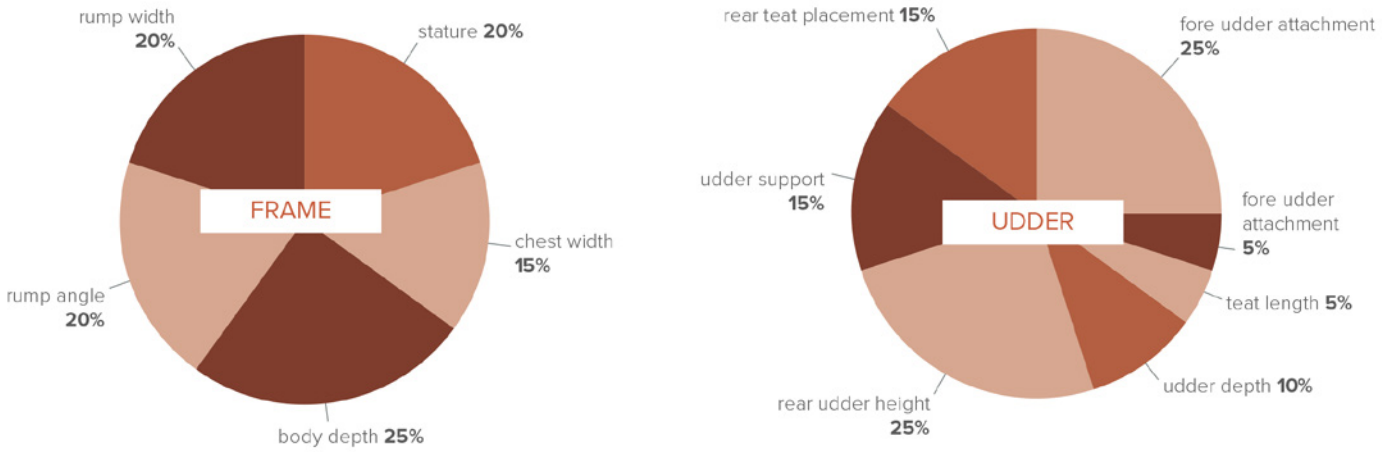

Figure 1. Weighted importance of linear traits in frame and udder for milk goal

stature to change the trend of cows getting bigger, and also to breed cows that are more balanced for the body measures, and with a slightly sloped rump. For udder the wish was that udder should not get too shallow, as it can give problems in an automatic milking systems and the udder needs enough capacity to store a certain amount of milk volume. For feet and legs it was said that rear legs side view is getting too straight. However, no adjustment is made in the calculation of feet and legs, as straight legs are already penalized quite heavily in the current calculation.

Weighted importance of linear traits in frame and udder

Figure 1 shows the weighted importance of the various linear traits in frame and udder. Stature is a new trait in frame and has a weighted importance of 20%, and the weighted importance of the other traits is adjusted for this. In udder the weighted importance is lowered to 10%, and for both fore udder attachment and rear udder height the weighted importance increased by 5%. The calculation of all composite traits is described in E-chapter conformation.

Which bulls change for frame and udder?

For the new frame composite the bulls benefit most when they have average stature with slightly sloped rumps, together with equal breeding values for stature, chest width and body depth. Bulls with breeding values for stature, chest width and body depth that are equal, and breed a bit smaller and more narrow, can now have a breeding value higher than 100. Bulls with breeding values far above average (higher than 104), will now show differences in frame as stature is now considered in the composite as an optimum trait. The changes in the frame composite resulted in reranking of the bulls for frame, where bulls with the linear traits around 104 will have the highest breeding values for frame.

For the new udder composite the bulls benefit most when they have high breeding values for fore udder attachment and rear udder height, still with and above average breeding value for udder depth. Compared to frame the change for udder are smaller, and this will result only in a slight reranking of bulls for udder.

Different ranking

The adjustments for frame and udder lead to a different breeding value to a greater or lesser extent, and thus the ranking of the bulls for these traits changes. The new breeding values for frame and type are more in line with the breeding goal and therefore allows to breed the desired type of cow for frame and udder.