

Two reasons for using genomic tests on females – from a farmer's perspective

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Genomic breeding values give the farmer more reliable information about the genetic level of females than the traditional breeding values (without genomic information) do. The largest benefit can be achieved when testing young females, because they have in general higher genetic level and lower reliability than cows with own observations for example from milk production.

For the farmers the reasons to use genomic tests on females are to identify the genetically really best ones, and to use this information so that it generates extra value in the herd. There are however, two different strategies for testing depending on what the results will be used for.

Embryos from the top genetic females

If only the highest ranking heifers (based on pedigree indices) are genomically tested, the really best ones from this group can be selected for embryo transfer.

The extra economic gain coming from higher genetic level when using genomic tests to select the best heifers for embryo transfer might not in all cases be able to pay for the costs of doing genomic tests. However in most cases embryo transfer is used to produce bull calves for AI companies, such as Viking Genetics. In this case doing genomic tests can result in bull calves that have the needed genetic level to be used as an AI bull, making it economically beneficial to do genomic tests.

Breeding strategy – use only the best females for replacement

Genomic testing can also be done in a larger scale within a herd. Then the purpose is to keep only the females with the highest genetic level for replacement. The rest of the females can be used to produce calves for other purposes (purebred heifers for sale or crossbred calves for meat production).

A Danish simulation study done by Knowledge for Agriculture from 2012 showed that with the current prices, genomic testing of all or part of the females in a Holstein herd gave a slightly higher profit than no testing, but only under certain circumstances. For RDC and Jersey there was less profit than for Holstein and none of the tested scenarios gave a higher profit than not testing with the current prices.

The main conclusion from the study is that genomic testing on a larger scale is only valuable if you have a surplus of heifers, so that you can use the genomic breeding values for an efficient breeding strategy. Further, how many and which group of heifers that are tested and the use of sexed semen also affects the economic results. See more details on [LINK](#).

When prices on genomic tests as well as sexed semen go down, the economic value for the farmer of genomic testing of females will be improved.