

Norwegian red

Norwegian Red (NRF) is a high producing dairy breed where fertility and health have been included in the net merit index since the 1970s.



Geno

- **Geno Breeding and A.I. Association** is a cooperative organization owned by 12.000 Norwegian dairy farmers.
- Geno is the breeding organization for **Norwegian Red (NRF)**, the main dairy cattle breed in Norway.
- **Geno Global** is owned by Geno and is in charge of all the export of Norwegian Red semen.

Participants from Geno:

- *Jan Ole Mellby:*
 - farmer and 2. leader in the boarding committee
- *Ingunn Nævdal:*
 - breeding consultant

75th anniversary



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- In 2010 Geno celebrate the 75th anniversary of the Norwegian Red (NRF) breed.



Revision of the conformation system

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- Changes of traits are made in the recording system
- Adjustments are done to be more similar to the ICAR recommended standards
- From September 2010 the number of classifiers will decrease from 300 to 60



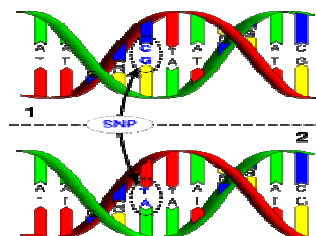
Sperm Vital

- New and effective insemination technology for animals
- Method to simplify the timing required to reach a desired fertilization result
- Advantages for the herd owners:
 - **Reduced number of inseminations per pregnancy**
 - **Less precise timing for insemination required can avoid Sundays, Holidays etc.**
 - **Same fertilization rate**
 - **Basic insemination techniques are similar**
 - **Uses standard insemination equipment**



Genomic selection

- GENO is currently involved in two major projects related to Genomic selection
 1. Large project funded by the Norwegian research Council:
 - **More scientific project**
 - **Methods, software, implementation and optimizing breeding scheme by using GS for different species**
 2. Internal project
 - **More practical**
 - **Number of animals genotyped, logistics related to samples, utilizing GS-value in own breeding scheme**



Current activities/achievements in genomic selection

- Imputation
 - **Geno currently have genotyped animals with both 25K (Affymetrix) and 54K (Illumina) (approx. 3500 animals)**
 - **>500K available in second quarter 2010!**
 - 25K + 54K results in >55.000 informative markers

- GS as pre-selection
 - **Genotyping of approx. 1000 bullcalves/year**
 - Increase the quality of the bullcalves
 - Reduce the number of testbulls
 - 5-25% increase in genetic gain (depending on accuracy)

- Accuracy on DGV (direct genetic value) highly variable among different traits
 - **E.g.: Clinical mastitis: 0.42; Fertility: 0.37; Production: 0.82**
 - **20-30% increase in accuracy by combining 25K + 54K for traits with low h^2**