

# Welcome to Norway!

ERFP assembly 2011

Stavanger

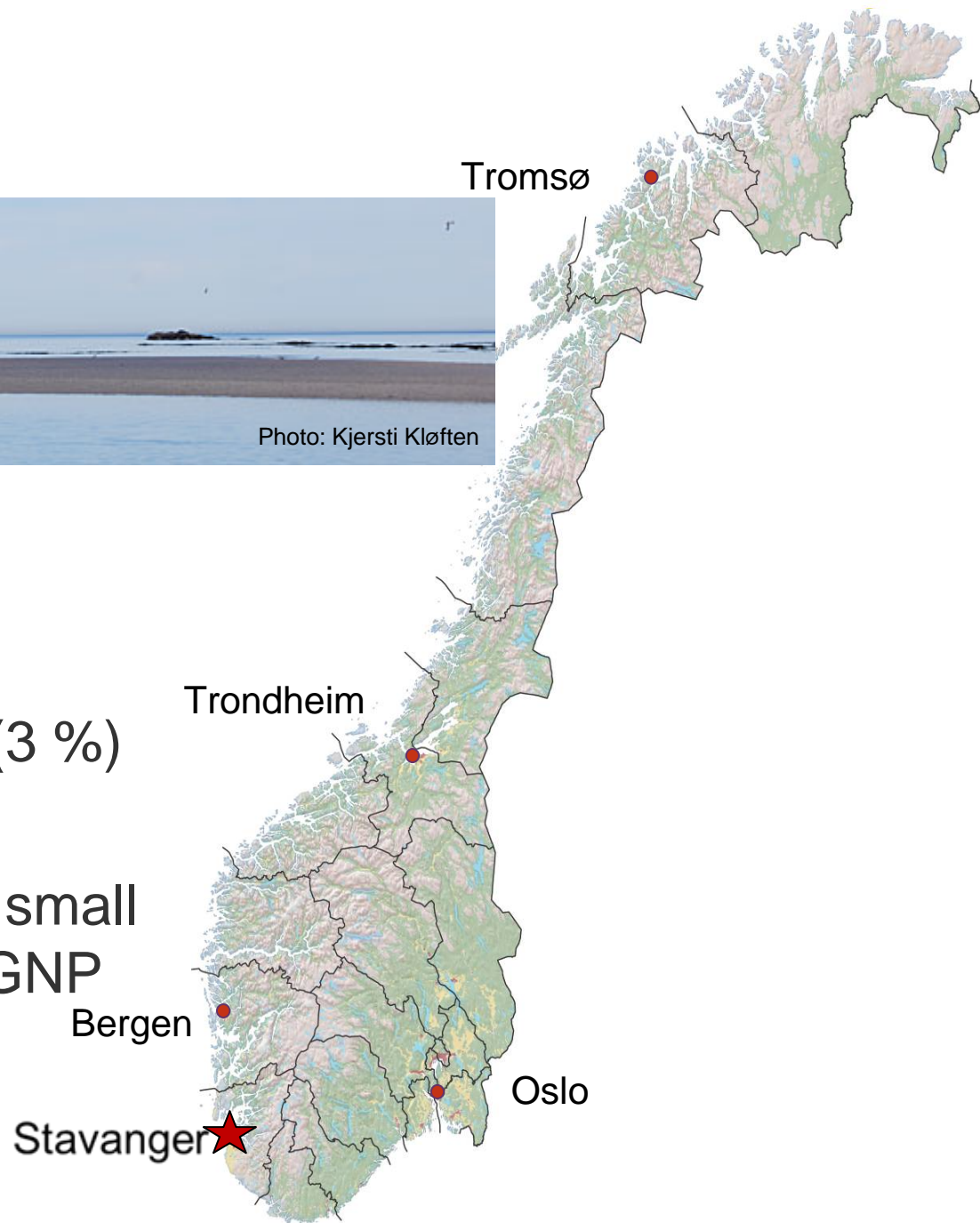
Nina Sæther, NC AnGR

# Norway



Photo: Kjersti Kløften

- > Lots of mountains
- > Plenty of grasslands
- > Hardly any arable land (3 %)
- > Farming and forestry of small importance (0.7 %) for GNP





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# National farming policy and practice

- > Goal: *To meet the the domestic consumer's demand for safe food*
- > Food produced from farming covers < 50 % of the demand for energy.
  - > Included aquaculture : net export of protein
- > 46 300 farms in 2010; 65 % with livestock production
  - > Farm sizes increase (average farm size 21.8 h)
  - > Full time farm employment has decreased by > 50 % the last decade
  - > Nearly no loss of arable land in the same period

# Trends in animal production 1999-2010:



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- > bigger herds
  - > stable population sizes
  - > higher production
- = *farmers and animals produce more*

	National herd size 1999	National herd size 2010
Dairy cows	14	21
Dairy goats	73	90
Sheep (meat)	51	72
Breeding pigs	26	65
Laying hens	900	2000



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# Facts about Norway and Stavanger

## Norway

- > 25 % of GNP from oil industry
- > 4,9 million inhabitants
- > Not a member of the EU
- > Total land area:  
325 000 km<sup>2</sup>

## Stavanger

- > the oil capital of Norway
- > 126 000 inhabitants  
(Oslo: 600 000)
- > The Stavanger region is the “animal production capital”

# Animal production in Norway and the Stavanger region



Animal production	No of animals in Norway	Share of the Stavanger region
Dairy cattle	245 000	17,8 %
Suckler cows	61 500	10,6 %
Sheep	1 055 000	20,7 %
Dairy goats	37 000	3,4 %
Breeding pigs	103 000	26,9 %
Slaughtering pigs	1 505 000	27,4 %
Laying hens	4 050 000	28,3 %
Broilers	56 000 000	20,1 %



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# Livestock production essential in agriculture and landscape management



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# Animal breeding in Norway

- > Native breeds supply all species used in livestock production except:
  - > Poultry
  - > Beef cattle
- > Native commercial breeds are exported, NRF (Geno) and Norsvin
  - > Health
  - > Fertility
  - > Robustness
  - > Efficiency



# Cornerstones in Norwegian breeding programs

- > Selection based on recorded performances
- > One recording system/production system
- > Utilization of state of the art breeding theory



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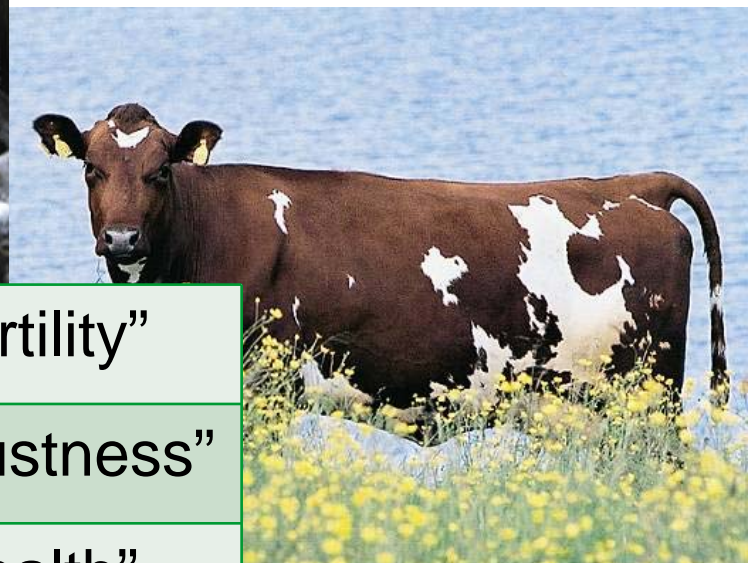
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# Cornerstones cont.

- > Cooperatives, owned by the farmers
- > *Equal* access to top breeding material all over Norway



# Today: Native commercial breeds in



“Fertility”

“Robustness”

“Health”

“Efficiency”





# *NRF presented in FAO's The State of the World's Animal Genetic Resources (2007)*

## Norwegian Red Cattle *Selection for functional traits:*

- ☺ Yield
- ☺ Health
- ☺ Fertility
- ☺ Conformation traits (udder and legs)

### Box 83

#### Norwegian Red Cattle – selection for functional traits

The Norwegian Red (NRF) is a high-producing dairy cattle breed in which fertility and health have been included in a selection index (known as the Total Merit Index) which has been in operation since the 1970s. The case of the NRF provides a practical illustration that production and functional traits can be successfully balanced in a sustainable breeding programme. This achievement has been based on an effective recording system and a willingness to place sufficient weight on the functional traits. The programme is run by GENQ, a cooperative owned and managed by Norwegian dairy farmers. Currently, ten traits are included in the Total Merit Index. The following list shows the relative weight given to each:

Milk index	0.24
Mastitis resistance	0.22
Fertility	0.15
Udder	0.15
Beef (growth rate)	0.09
Legs	0.06
Temperament	0.04
Other diseases	0.03
Stillbirths	0.01
Calving ease	0.01

Key features of the programme include the fact that more than 95 percent of herds participate in the recording system and are on a computerized mating plan, 90 percent of matings are carried out using AI, and there is 40 percent use of test bulls. All diagnosis and health registration is carried out by veterinarians, and databases are maintained for pedigree and AI-related information. About 120 young bulls are tested annually with progeny groups of 250 to 300 daughters – thus enabling the inclusion of traits with low heritability (such as mastitis with a heritability of 0.03 and other diseases with 0.01) while still providing a selection index with high accuracy.

Milk production per lactation in the best herds exceeds 10 000 kg, with the top cows producing more than 16 000 kg. The genetic trend is positive with

respect to fertility – the average 60 day non-return rate in the population is 73.4 percent. Between 1999 and 2005 incidence of mastitis in NRF cows was reduced from 28 percent to 21 percent, and it is estimated that of this reduction 0.35 percent per year was the result of genetic improvement. Major calving difficulties are reported in less than 2 percent of calvings, and less than 3 percent of calves are stillborn.

The sustainability of the breeding programme is promoted by a number of factors:

- Both production and function are expressed by many traits, and they are both strongly weighed in the breeding strategy.
- Many different combinations can result in a high total breeding value. This allows for the selection of animals from different breeding lines and, thus, automatically reduces the risk of inbreeding.
- The breeding work is based on data from ordinary dairy herds, which guarantees that the breeding programme produces animals that are well adapted to normal production conditions.

Provided by Erling Finland.  
For further information see: [http://www.geno.no/genosett/presentation/default.asp?menyvalg\\_id=418](http://www.geno.no/genosett/presentation/default.asp?menyvalg_id=418)



Photo credit: Erling Finland





**Thank you!**