

## Conservation of Endangered Cattle Breeds Native to Norway

The Norwegian Genetic Resource Centre is responsible for the conservation and sustainable management of Norway's national livestock breeds, but is dependent on close cooperation with a broad range of stakeholders. The Centre is specifically responsible for following up rare breeds native to Norway.

### A JOINT EFFORT

The farmers who keep Norwegian cattle breeds at risk make an important contribution to conserving and generating interest in these breeds. Also, some agricultural schools and museums keep native cattle and other livestock breeds to show the part these animals play in Norway's agricultural heritage. Such outreach work is an important part of breed conservation efforts.

### BREEDING ORGANISATIONS

Following a period of decline in the 1960s and 70s, there has been increasing interest in old cattle breeds since the 1980s. Separate breeding organisations were established for the Døla, Western Fjord, Western Red Polled and the Eastern Red Polled cattle breeds. Whereas the organisations are in charge of breed marketing and member services, the Norwegian Genetic Resource Centre manages pedigree recording of the herd bulls. The respective breed organisation, the Norwegian Genetic Resource Centre and Geno cooperate on selecting AI bulls.

The breeding organisations of Telemark cattle and Sided Trønder & Nordland cattle never merged with Norwegian Red (NRF), the dominant dairy breed in Norway, as the other national breeding organisations did in the 1960s. Thus, these two organisations are still responsible for the genetic improvement of their respective breeds, including selection of AI bulls and pedigree recording, as well as breed marketing and member services.

### COW DATABASE

The 'Cow Database' is a pedigree recording system for all Norwegian cattle breeds at risk. Data from members of the national dairy herd recording scheme are automatically transferred to the Cow Database. Other cattle farmers have to contact the Genetic Resource Centre to register their animals. Recorded data are used to:

- Monitor population and inbreeding trends of the breeds, some of which are critically endangered
- Determine the degree of inbreeding for live animals and simulated offspring
- Control subsidy payments for rare native cattle breeds

### SUBSIDIES

A subsidy scheme for raising rare native cattle breeds was introduced in 2000. The subsidies are allocated according to the same procedures as other production subsidies. Since 2005, some counties have also established support schemes for keeping rare native livestock breeds, as part of regional environmental programmes.

## Norwegian Genetic Resource Centre

The Norwegian Genetic Resource Centre initiates and coordinates activities regarding the conservation, characterisation, monitoring and utilisation of genetic resources. The Centre shall contribute to the effective and sustainable management of genetic resources in farm animals, crops and forest trees, and also acts as an advisory body to the Norwegian Ministry of Food and Agriculture. Furthermore, the Genetic Resource Centre provides information about the importance of genetic resources for agriculture and their potential for local business development.

The Norwegian Genetic Resource Centre is part of an extensive network of institutions, organisations and committed individuals, all of which contribute significantly to securing the sustainable management of genetic resources in Norwegian agriculture. The Centre is also involved in various international activities.

## Genetic Resources

Genetic resources are biological material containing genetic variation that could be of importance for both evolutionary development and specific breeding goals.

Genetic resources in farm animals, crops and forest trees are the living foundation on which both today's agriculture and future developments are based. These resources must be managed through conservation and sustainable use to maintain biodiversity and ensure food security, and to secure the quality of life and welfare of future generations.

## Farm Animals

It is important to secure the genetic diversity of our farm animals – both our older, native breeds, and the more modern ones.

The old livestock breeds were recognised as distinct breeds more than 100 years ago. There are still farmers who keep old breeds, which are an important part of our cultural heritage. At the same time, these breeds are also a genetic alternative to the more modern animal breeds.

The Norwegian Genetic Resource Centre promotes the sustainable breeding of the national livestock breeds. Sustainable breeding means selecting for both production traits (milk yield and growth rate) and functional traits (health and fertility), while at the same time keeping the inbreeding rate under control. The sustainable breeding programmes of Norway's three large breeding associations; Geno (dairy cattle), Norsvin (pigs) and Norsk sau og geit (sheep and dairy goats) attract international attention.

For old breeds with extremely small populations, sustainable breeding means keeping a strong focus on the inbreeding rate. Other important breeding goals include the maintenance of traditional breed characteristics, such as colour and horn shape, in order to secure the breed's phenotypical distinctiveness.



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Native Endangered Farm Animals



## Døla Cattle

The Døla cattle originated in the valleys of central and eastern Norway, where there was abundant access to rich mountain pastures.

However, it was difficult to market fresh dairy products in these thinly-populated areas, and the animals were thus generally fed to finish. The Døla cattle was therefore typically bred as a dual-purpose breed (milk and meat). Around 1900, it was considered to be the heaviest Norwegian cattle, with a live weight of about 350 kg. Nowadays, a Døla cow typically weighs 500 kg.

A general breed standard for Døla cattle was never fully agreed upon, although it was usually claimed that a Døla cow should be black with a brown dorsal stripe. The headmaster of the farming school at Jønsberg, Johan Hirsch, based the development of the school's breeding stock on this standard in the late 1800s. The Jønsberg stock was renown and was important in the development of the Døla cattle. Johan Hirsch is often considered the father of the breed. Nowadays, colour variation is a distinctive trait of Døla cows – including black, brown, red, white and brindle. Colour patterns include unicoloured, spotted and colour-sided. Most Døla cattle have large horns, but polled animals occur.



## Eastern Red Polled Cattle

Old documents show that as far back as in the 1700s, some herds in eastern Norway already had substantial numbers of red and polled cows.

In the late 1800s, when the trend was to develop different breed standards for the cattle in each region, the desired breed standard in the Oslo region was red and polled, although some animals also had white markings.

Based on the good farming conditions in the region, the Eastern Red Polled was bred as a fairly large and productive dairy cow. Already in the 1950s, adult Eastern Red Polled cows could weigh in at about 500 kg. In comparison, modern-day Norwegian Reds weigh approximately 550 kg.

Eastern Red Polled was the dominant cattle breed in the farming regions of south-eastern Norway until gradually being replaced by Norwegian Red. The two breeding organisations merged in 1961, and only a few farmers stuck with the old native breed. In the late 1980s, the Eastern Red Polled population was down to 10 cows. With some help from its sister population, the Swedish Red Polled, these 10 cows were used to build up the breed's numbers.



## Western Red Polled Cattle

Western Red Polled originated in south-western Norway, an area known for its good soils, favourable climate and skilled farmers. Western Red Polled cows thus became somewhat larger than the cattle further north in the fjord regions.

Lyngdal cattle, which also was red and polled, was part of the stock that made up the Western Red Polled. Some say that Lyngdal cattle, in turn, can be traced back to imported stock of a Jersey type from the 1700s. In the late 1800s, the variety of colours and markings of the region's cattle was consolidated as red, polled animals, and the Western Red Polled was finally established in the early 1900s.

The county of Rogaland was a centre of livestock breeding in the region, from which many breeding bulls were sold to the fjord areas further north. Thus, Red Polled herds were established as far north as Møre in the early 1900s.

Today, we can also find Red Polled in the fjord regions, although they are characteristically smaller, like the Western Fjord cattle.



## Sided Trønder and Nordland Cattle

Sided Trønder and Nordland cattle, often abbreviated as STN, is the result of a joint breeding effort in the late 1800s throughout large parts of central and northern Norway.

Today, you can find STN in all counties, although most are still kept in the original inland and northern parts of Norway. The breed is also called Røros cattle, which refers to the town of Røros, where the organised breeding work began.

STN is a dairy and a dual-purpose breed, adapted to the natural conditions of the inland valley and mountain settlements. Average live weight is slightly below 450 kg. Nowadays, they are naturally polled and often black-sided, although red and brindle-sided animals also occur. The balance between black and white can vary considerably, ranging from nearly all-black with a white dorsal stripe – to almost all-white with a few black side spots. STN cows are usually black or coloured around the eyes, ears and muzzle. They are fine-boned, good-natured and known for being very light-footed in rough terrain.

STN cows reach sexual maturity early, and exhibit clear signs of oestrus. First-calver milk yields are usually moderate, but increase with age.

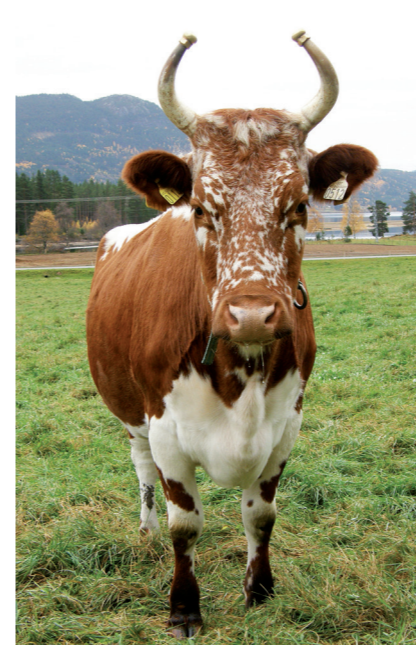


## Telemark Cattle

Telemark is Norway's oldest cattle breed, having been established as a distinct breed already in 1856. The same year, the first official Telemark exhibition was held in Kviteseid (in the county of Telemark). Norway's first national agronomist, Johan Lindeqvist, was the driving force behind the establishment of the breed, which he thought was very suitable as a mountain breed for the entire country. Thus, Telemark was crossbred with many local mountain cattle, and the breed eventually spread throughout all of southern and eastern Norway.

From about 1900, livestock breeding increasingly adhered to the theory that acquired traits were inherited, based on previous generations' adaptation to their environment. Thus, each region's "own" breed was considered to be the best for that area, which in turn led to the development of countless local cattle breeds. Telemark cattle were increasingly looked upon as alien in many places outside of Telemark County. In spite of this, the breed was widely regarded as a national symbol, and many farmers kept at least one Telemark cow in their herd.

Today's breed standard for Telemark cattle states: Telemark should be red- or brindle-sided. The head should be spotted, with red muzzle, cheeks and ears. Spots on the head and in-between red and white markings are desirable, as are well-formed horns. Telemark should be a typical dairy breed, and not too heavy-boned.



## Western Fjord Cattle

The Western Fjord originated in the fjords of western Norway.

In the late 1800s there were attempts to establish numerous local breeds, and nearly every fjord was to have its own breed standard. The standards were divided among the various regions:

- Sunnhordland: red, polled
- Midthordland: black, horned
- Nordhordland: black/black-sided, horned/polled
- Ytre Sogn: black/black-sided, horned
- Indre Sogn: red, horned
- Sunnfjord: black/grey, polled
- Nordfjord: black/grey, horned
- Sunnmøre: grey, polled
- Nordmøre, Romsdal: black-sided, polled

This division soon caused problems due to inbreeding. Thus, pedigree records were merged into one breed, which was called Western Fjord. In 1947, Western Fjord and Western Red Polled merged into what was called South and Western cattle, mainly due to inbreeding problems in Western Fjord. However, when conservation measures were initiated in the 1980s, Western Fjord and Western Red Polled were kept as separate breeds.

Today's Western Fjord show considerable colour variation, including black, brown, red, white, roan and brindle. Colour patterns include unicoloured, spotted and colour-sided. Some animals have horns or horn stubs, but many are polled.

