

## The Reliable Indigenous N'dama

With the threat of disappearance hanging over many of West and Central Africa's indigenous cattle breeds, it is vital to systematically map, study, and understand the characteristics of the region's cattle in view of better conservation. Most countries of West and Central Africa particularly those in the Sahelian belt face challenges linked to droughts and degradation of agricultural and pastoral lands as well as the infestation of the dreaded Tsetse fly. Adapting to these complex changes requires useful knowledge of the critical cattle breeds that are today the source of food and livelihood security for a growing number of families and communities in the region. The phenotypic characterization of animal genetic resources involves the identification of different breeds and the description of their external characteristics and production in a given environment and management framework, taking into account the socio-economic factors that affect them.

### History and Distribution

It is believed that the N'Dama breed was first observed about 9000 BC. The breed spread to the rest of West and Central Africa from the Fouta Djallon highlands in Guinea. In the process, it became adapted to the unique environment of the countries where it is now found, including Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone, Côte d'Ivoire, western Mali, Ghana, Togo, Nigeria, Cameroon, Central African Republic, Gabon, Republic of Congo, and the Democratic Republic of Congo. The N'Dama belongs to the species *Bos taurus* and is known by different names based on the country where they are found. In Guinea-Bissau for example, it is called Boyenca; Fouta Jallon, Fouta Longhorn, Fouta Malinke, Mandingo in Liberia and N'Dama Petite in Senegal. The N'Dama breed is small in size, and its productivity is lower compared to most of the zebu cattle populations in tropical areas.



Figure 1: Geographic distribution of N'Dama in Africa (Source: <https://en.wikipedia.org>)

### Physical Characteristics

The N'dama is an animal with compact and set on short legs of fine bone. The neck is thick and deep while the back is fairly broad, well-fleshed and straight from withers to tail head. The height at the withers rarely exceeds one meter. They have a short and broad head, straight profile and broad muzzle; the average horn size is about 60 centimeters, and the horns typically curve upward and outward or have a lyre-shape, although there are different horn shapes and occasional polled individuals, especially in Sierra Leone and Guinea.

The bulls of this breed have the baleen and ventral foldover not very apparent, with a dorsal line almost horizontal. The tail is long and ends with a well-stocked bun. The N'Dama has short, slender limbs, with hooves strong enough to be used for traction work. The cows have modest udders with fine teats. The hair on the skin is smooth and short. It's average weight ranges between 275 and 350 kg with some bulls sometimes reaching 420 kg. Bulls give a slaughter yield of up to 54-55 percent.

### **Unique Adaptation Features**

The N'Dama breed is a trypanotolerant breed, well adapted to the humid tropical environment and the conditions of traditional extensive breeding. Bulls of this breed are resistant to some devastating enzootic diseases (trypanosomosis, dermatophilosis, and various parasitic diseases). They are also known to be resistant to piroplasmiasis. The N'Dama is known to be highly tolerant of tropical diseases. For example, it is considered extremely-tolerant to trypanosomosis. It is also particularly resistant to tick-borne infections. The N'dama is well accustomed to stressful humid and dry tropical climates. They can walk long distances in search of water and pastures.

### **Economic Utility of the N'Dama**

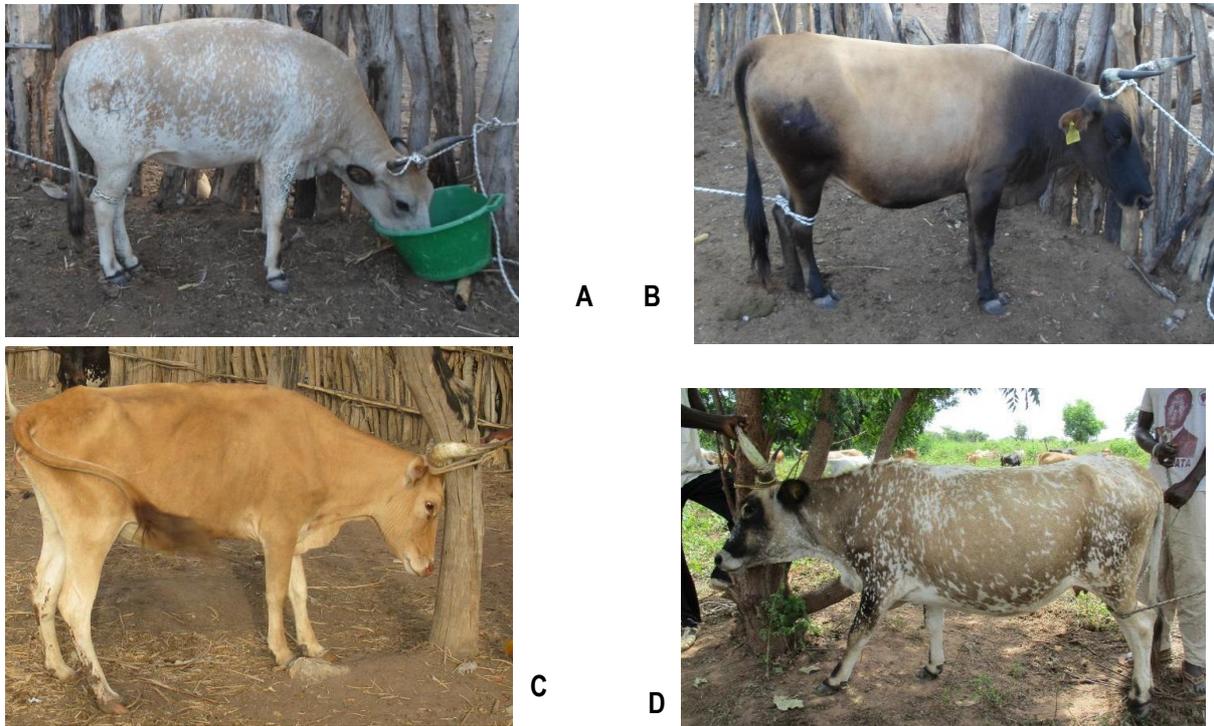
The N'Dama cattle are known for their beef value and have good quality meat with tight grains. The dressing percentage is around 50 percent, and the meat has an excellent flavor without much fat. The N'Dama is a multipurpose breed with relatively low milk production, although partial milking is frequently carried out in the traditional herds of West Africa. In these circumstances, the yield for humans is estimated at 70-100 kg per cow per year in most countries with a higher output of 178 kg/year being reported from Mali. The full lactation yield is considered to be about 500-600 kg. A dairy herd of N'Dama maintained in Sierra Leone from 1944-1952 averaged 540 kg during lactation period of 283 days in one five-year period, with highest yields around 1150 kg per lactation. The N'Dama are good work animals as they are mostly used for carts and plowing in West Africa.

### **Zoom on the N'Dama in Senegal and Côte d'Ivoire**

As part of ongoing initiatives to improve the performance and competitiveness of the livestock sector in West and Central Africa, CORAF is coordinating a series of studies related to the conservation and improvement of local animal genetic resources in Cote d'Ivoire, Burkina Faso, Guinea-Bissau, Niger and Senegal.

In Senegal, the study was carried out in the Kedougou (Guinea border), Kolda and Sedhiou (South) regions involving a sample of 220 N'Dama cattle including both male and female aged at least 4 years among 30 herdsman. The results revealed that the N'Dama breed is compact with a straight back line and an average height at the withers varying between 97.93 and 104.21 cm. The results also showed that the tawny robe is predominant while various other types of dresses are found in the regions of Kolda and Sedhiou. The data showed an increasing gradient in the mean height at the withers as  $97.93 \pm 5.16$  cm in the region of Kedougou (Small

N'Dama),  $102.95 \pm 3.25$  cm in Kolda (intermediate size of N'Dama) and  $104, 21 \pm 3,87$  cm in Sedhiou (large N'Dama).



**Figure 2 : The different dresses of the Ndama cattle breed of Senegal (Cow with tawny variegated dress, Cow with tawny charcoal dress, Cow with tawny uniform dress, Cow with tawny charcoal and variegated dress)**

In Côte d'Ivoire, the characterization of sampled N'Dama Bulls revealed two phenotypic groups:

The first group consists of animals from western Côte d'Ivoire with horizontal ears, eyelids and muzzle not pigmented. Their dress is tawny red and the line of the back is rectilinear. They have lyre horns and the dewlap is moderately developed. The animals in this group have the particularity of a long face. The linear characters that make it possible to better discriminate the animals of this group are the length of the head, the length of the face, the length of the horns, the length of the tail and the height at withers;

The second group consists of animals from the Central part of Côte d'Ivoire. These are distinguished from the first group by a wider head, a longer and wider skull, a large muzzle circumference, more spaced horns, a larger and deeper thorax, and a longer body. The descriptors for better identifying and describing the animals in this group are head width, skull length, skull width, base-base distance, thoracic perimeter, thoracic depth and body length.



A) N'Dama from Ouaninou



B) N'Dama from Bouaké (Brobo)



C) N'Dama from Sipilou



B) N'Dama flock from Yamoussoukro

**Figure 3. N'Dama animals from Central and northwest regions of Côte d'Ivoire**

## Conclusion

The data provided by the characterization studies will add to the much-needed information that will help in determining the diversity of the cattle in the region and how such diversity with regards to physical attributes is enabling adaptation to the surrounding environment. Such information is essential for planning the management of animal genetic resources at the local, national, regional and global levels.

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