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**CATTLE BREEDS BRAZILIANS CAN CONTRIBUTE TO THE NATIONAL
LIVESTOCK**

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The cattle arrived in Brazil brought by the Portuguese in the colonial period. The races were European subspecies *Bos taurus taurus* and they had to adapt to the tropical climate, and this occurred through mutation. These mutations have bequeathed to Brazil four races today recognized: **Caracu, Crioula-Lageana, Curraleiro Pé-Duro e Pantaneira**. The characteristics of these breeds are useful for genetic selection of other existing breeds and exploited economically in Brazil belonging to the subspecies *Bos taurus taurus* and *Bos taurus indicus*, this last is popularly known as zebuína. The Zebu cattle arrived in Brazil in the second half of the 19th century, coming from India, a country with environmental conditions similar to those in Brazil. Here your center of dispersion is the Triângulo Mineiro (MG), more precisely the city of Uberaba, which hosts the Brazilian Society of Creators of Zebu and the annual exposition of these animals. So succinct follow aspects of these races.

The Caracu race It is more widespread in the southeastern region and has the best commercial use. The herd has approximately 20 thousand individuals with two varieties: the horns, more common; and without horns. The coat of both is orange.

The Crioula-Lageana race is in the South region, and the region of Lages, in the State of Santa Catarina, the principal place of formation of the breed. It resists well to heat and cold temperatures. The coat is quite varied, from brown to white, many times fold. There are around three thousand animals with private breeders.

The Curraleiro Pé-Duro race has the Caatinga and Cerrado biomes as seating area. It was formed by portuguese and spanish breeds that have begun to arrive here at the beginning of colonization, in 1534, on the northeast coast of and spread to the interior of the colony. It presents good rusticity, producing good quantity of milk and

meat even in conditions of poor pasture and intense heat. The coat is reddish to beige with black spots, especially in the head. Still at risk of extinction.

The Pantaneira race has the Pantanal biome as seating area. It is cattle whit large horn, living well in flooded areas providing good quality meat. The coat is varied, going from the beige-clear to red-dark and there are animals spotted. It is the race that runs a greater risk of extinction.

The genetics of these races is object of study of several groups of researchers. In addition to conserving the genetic heritage of these races, they want to understand the biological mechanisms that made these animals survive to the ecological conditions and native pastures in Brazil. Since 2005, the brazilian breeds are genetically identified by microsatellite markers, which are short sequences of repetitions of the genome of a species and allow studies of genetic variation of a population.

Now, in addition to removing the brazilian breeds in danger of extinction, these researchers from Embrapa and the University of Goiás (UFG), Brasília (UnB), and Cordoba, Spain address to identify the genes linked to certain characteristics in order to put this genetic wealth at the service of the Brazilian livestock, incorporating it in the commercial herd through crossroads and supply of semen.

For example, the intersection of two races genetically distant generates children with better performance than the average of the fathers; the greater the genetic difference, the better the result. Cross a cattle with an animal of a brazilian breeds can bequeath to offspring rusticity to diseases and climate adaptation of forming two races of the animal.

In more comprehensive study, researchers from Embrapa, the Federal University of Mato Grosso (UFMT), Mato Grosso do Sul (UFMS), Brasília (UnB), state of Mato Grosso do Sul (UEMS) and the Católica de Goiás (PUC Goiás) aims to demonstrate the relationship between genes and the inherited characteristics. Also works with the conservation and identification of possible flocks in the Semiárido, Cerrado and Pantanal.

One of the research deals with the resistance of the Curraleiro Pé-Duro the intoxication with the main existing toxic plant in pastures in Brazil, the coffee or herb-of-mouse (*Palicourea maregravii*), responsible for high mortality of cattle, sheep and goats. The animal that eats dies in a few hours. It is a plant native to Atlantic Forest and Cerrado, but today present in all Brazilian biomes. In an experiment conducted in 2015, six animals of breeds Curraleiro Pé-Duro, Pantaneiro and Nelore steers were fed

cup. The nelores died until three days ago, the pantaneiros in 24 hours, between the curraleiros three died and three have survived. The fact of the survival of three animals has led researchers to seek answers in the genetic or physiological characteristics of these animals to learn which allowed them to survive.

Interesting aspects, picturesque and rentals have encountered with these races in Brazil. In 2012 the foot-hard curraleiro was registered as a race in the Ministry of Agriculture, Livestock and Food Supply (MAPA), but the technicians of the genealogical records were not favorable to the registry. They argued that these animals had no commercial interest. The team of researchers coordinated by professor Clorinda visited the arid and the Cerrado and found around 10 thousand animals.

And more than a simple number the curraleiro is already showed an animal suitable for the production of meat and milk. The cow curraleira when milked, produces on average 10 liters of milk per day, while the Nelore, specialized in the production of meat, reaches from 3 to 4 liters/day, says Geraldo Magela Pereira, curator of the nucleus of Curraleira cattle breed of Embrapa Meio Norte, in Teresina (PI).

Among the four Brazilian cattle breeds, the only still without registration on the MAPA is the Pantaneira breed, but your registration process is well advanced. The Caracu is the only race that today it is in danger of extinction, because it reaches more than 20 thousand individuals in the country. The Brazilian breeds began to disappear with the entry of the Zebu cattle, mainly from the year 1940.

With the record, the race if values and transforms into a product, allowing the marketing of semen and embryos, says Raquel Soares Juliano, veterinary of the Embrapa Pantanal, in Corumbá (MS), the curator of the Nucleus of Conservation of the Pantaneiro cattle, founded in 1984, whose first concern which lasted for 15 years, was to contain the risk of extinction of animals, *"characterizes them as a race, genetically different from its Iberian ancestors and their relatives Brazilians, as curraleiro and Crioulo Lageano"*, explains the researcher Raquel.

The Brazilian herd is 172 million head, data from the Census of Agriculture 2017 of IBGE, of this total 80% are zebu breed Nelore, Gir and Guzará. The 20% are european breeds Angus and Charolais, Dutch, Simmental and several others. This variety has formed the Brazilian breeds. In addition to the zootechnical gains of these races, when crossed with other Brazilian commercial squad, they constitute a heritage of the animal biodiversity of the country. They are also part of the history of national

livestock as an agent of the exploration and conquest of the Brazilian territory. Their conservation and expansion is a symbol of the Brazilian livestock.

The result of selection and crossbreeding for nearly 500 years, the cattle herd in Brazil presents enormous genetic diversity based on European and Indian races. The Brazilian races – Caracu, Crioula-Lageana, Curraleiro Pé-Duro and Pantaneira – with the studies and associations of breeders are starting to occupy their space in the flock and the intersections with the European and Indian races further strengthening the national livestock.