

Beef cattle genetic evaluations in South America

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Abstract

Latin America accounts for very significant proportions of the world beef production and exports, being a very relevant beef supplier for the increasing food demands. Data presented here focused in the main South American beef producer/exporter countries: Argentina, Brazil, Colombia and Uruguay. Genetic evaluations are in place in these countries for the main beef breeds. Given the complexity of climates and production environments a large number of *bos taurus* and *bos indicus* breeds and composites are used. In the temperate regions (Argentina, Uruguay and south of Brazil), Hereford, Angus, Bradford, Brangus and Limusin breed are the main breeds under genetic evaluation. *Bos indicus* breeds and composites dominates the tropical areas. Brahman and Nellore are key in these areas, but in Brazil other relevant breeds such as Guzera, Tabapua, Canchim, Sindi & Indu brasil and Senepol are also under genetic evaluations. More than 40 traits are being evaluated across countries and breeds. Traits such as birth, weaning and yearling (final) weights are included in all breeds and countries. Eye muscle area and subcutaneous fat depth (measured by ultrasound) are the most common carcass traits, whilst marbling or intramuscular fat percentage is less frequent, as well as predictions of percentage of saleable/edible meat and conformation or muscularity visually assessed in the live animals. Female reproductive traits related to precocity and reproductive efficiency are evaluated mainly in *bos indicus* breeds. These traits are less common in the genetic evaluations of *bos taurus* breeds, in which scrotal circumference is the most frequent selection criteria. Feed efficiency is only being evaluated in Hereford in Uruguay and Nellore in Brazil, although other breeds in Argentina and Brazil are planning to include it in the short term. In most the breeds and countries, breeding programs are carried out by breeding societies or groups of breeders in collaboration with national universities, research institutes or specialised companies. Genomic breeding values are available in Hereford in Argentina and Uruguay, developed in the context of the Hereford Pan-American evaluation and in one of the Brazilian Nellore breeding programs (ANCP). Training populations are being implemented in other breeds such as Angus (Argentina, Uruguay) and Hereford and Bradford in Brazil.

Keywords: genetic evaluations, bos indicus, bos taurus, selection criteria, genomic selection