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Abstract Submission Form

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Preferred presentation Poster

Preferred session Session 6: SC Dairy Cattle Milk Recording – Presentation and evaluation of new analytical parameters in herd management for dairy farms

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Title of your paper Challenges and Opportunities in Sustainable Genetic Improvement of Zebu Dairy Farming

Insert ABSTRACT text

India, Pakistan, and Brazil are among the top five global milk producers, alongside the USA and China. A common characteristic shared by these countries is their reliance on Bos Indicus cattle breeds for dairy production, whether pure or crossbreeds. The objective of this discussion is to detail the challenges encountered in collecting phenotypes and highlight the measures taken to address these challenges. Bos Indicus cattle, also known as Zebu, originated in India and Pakistan, gaining significant economic and social importance due to their adaptability in these regions. Brazil, with its agricultural sector playing a crucial role in the Gross Domestic Product (GDP) and representing the main set of exported products, has witnessed an increasing demand for greater competitiveness in the livestock chain. Consequently, genetic selection programs for Zebu cattle have been implemented since the 1990s. The adoption of appropriate statistical methods and effective zootechnical control, along with adaptable phenotyping to local conditions, has led to a significant increase in Zebu animal productivity and genetic potential, consequently increasing annual milk yield. Zebu cattle, widely distributed and remarkably adaptable, have become significantly relevant in the Brazilian dairy industry, representing over 80% of the country's dairy

population, whether pure or crossbred, and driving the overall performance of national milk production. However, the vast territorial extension of Brazil and the importance of small and medium-sized dairy herds pose logistical challenges for milk collection, negatively impacting data collection. In the past year (2022), data on milking records were collected from 202 herds, with an average of 13.9 lactating cows per month per herd, ranging from 1 to 126. Brazil is divided into 5 regions, with the percentage distribution of the 6718 lactating cows in the last year by region as follows: Southeast: 71%, South: 0.5%, Northeast: 8%, North: 0.5%, and Midwest: 20%. Out of this total number of lactating cows, 5802 were of the Gyr breed (86.4%), 587 were Guzerat breed (8.7%), and 329 were Sindhi breed (4.9%). To reliably collect and record data in herds of pure Zebu breeds, specialized technicians are necessary. However, the need for periodic technician visits limits the acquisition of sufficient data volume for robust genetic evaluation, such as the "test day model". To address these challenges, various alternatives have been implemented to improve phenotype collection. The first strategy involves increasing the training of specialized technicians in different regions of the country to reduce the need for extensive travel for monitoring. Additionally, regular data monitoring ensures dataset integrity, increasing accuracy, and allowing real-time adjustments in the collection process. Furthermore, it is expected that regular monitoring of data obtained from each farm will establish confidence levels for each herd, enabling herds with high confidence to contribute their data to the system. This enables the identification of herds with sufficiently large contemporary groups, reliable data, and the entire herd being subject to collection, regardless of lactation order or productive merit. These initiatives represent promising opportunities to enhance the genetic evaluation of Zebu dairy herds, driving the sustainable development of dairy farming in Brazil and across tropical environments.

Enter keywords zebu cattle, tropical environment, dairy cattle, milking record.