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ANIMAL SCIENCE:

Challenges in Production and Sustainability

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ANIMAL SCIENCE:
CHALLENGES IN PRODUCTION AND SUSTAINABILITY

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Letter from the Chair

Dear Participants

The Brazilian Society of Animal Science (SBZ) started in 1951 a mission to develop livestock in Brazil through new information and exchange of experiences among professionals in the area. In these 70 years, SBZ has done a great job in publishing the results of technical-scientific observations carried out in universities and research centers in Brazil.

Many advances in animal production were registered with the SBZ meetings and publications, and it is known that many were and will be the challenges faced by the Agricultural Sciences area in the coming years. Thus, the theme of the 56th Meeting is "Animal Science: the challenges of production and the sustainability of the planet", and intends to provide an environment for scientific and technical discussions and boost animal productivity in Brazil and, thus, meet increasingly demanding markets.

We also partnered with two other important events: Formuleite and the Symposium on Biometeorology, Ambience, and Animal Behavior and Welfare. Our target audience includes, besides researchers and academics, technical professionals and companies in the area.

In this material, you'll see all the abstracts submitted and approved by our team of collaborators, with the highlights of each research area.

I would like to send a big THANK YOU to the entire team of collaborators and also to all the participants. We are aware of everyone's difficulties in this difficult period that the world is facing. We had to make changes; our event could not take place in the beautiful Ilha da Magia (Florianópolis – SC), but we brought the best in a virtual platform.

Last but not least, I want to express my gratitude to all the sponsors and supporters who contributed to making this meeting a reality.

We now have a lot of work in the hope of better days.

Yours sincerely,

Sandra Carvalho
Chairman of the 56thAnnual Meeting of the Brazilian Society of Animal Science

Forage mass and grain yield of maize growing in crop-livestock-forestry systems

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The increasing demand for food and renewable energy resources has been supporting studies of competitiveness and complementarity interactions between trees, crops, and animals. Thus, the integrated systems should promote a synergic relationship between the components resulting in greater production of crops, animals, and forestry. In this sense, our objective was to compare the forage mass and grain yield of maize (*Zea mays* L.) mixed with Marandu palisadegrass (*Urochloa brizantha* (Hochst. ex A. Rich.) R. D. Webster) growing in a crop-livestock-forestry system with single-row (CLFs) or triple-row (CLFt) groves with *Eucalyptus urograndis* (hybrid of *E. grandis* W. Hill ex Maiden and *E. urophylla* S. T. Blake) in Sinop, MT, Brazil. The experiment was carried out from two years in a randomized complete block with trees rows (grove) were spaced in inter-row, intra-row, and inter-grove with 3.5×3.0×30 m, with 135 tree ha^{-1} (after thinning) for CLFt and 37×3.0 m (inter-row×intra-row) with 90 tree ha^{-1} for CLFs. It was observed a reduction of up to 13% and 23% in light radiation between CLFt and CLFs systems during 2017 and 2018, respectively. The forage mass (maize + palisadegrass) and corn grain yield per system decreased according to light radiation. The forage mass was 9.5 and 6.2 Mg DM ha^{-1} in 2017 and 21.5 and 14.0 Mg DM ha^{-1} in 2018, for the CLFs and CLFt systems, respectively. The grain yield was 3.34, and 1.66 Mg DM ha^{-1} in 2017 and 4.66 and 2.55 Mg DM ha^{-1} in 2018, for CLFs and CLFt, respectively. This grain yield reduction was due to the competitive advantages of trees in integrated systems, wherein, the tree canopy greatly diminishes the light available to the crops (maize + palisadegrass). The maize, a C_4 plant metabolism and with higher light saturation point, becomes very susceptible to shading. Consequently, the forage mass and grain yield were negatively affected by light radiation, especially in 2018, when there was less light transmission due to the higher tree canopy. We concluded that the single-row arrangement is recommended because assure a greater forage mass and grain yield for crop-livestock-forestry systems.

Keywords: *brizantha,* corn, eucalyptus, integrated systems, light radiation, shade

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