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Introduction

Brazil is one of a few countries in the world that can produce animal protein, and grains, in the same area, either in consortium, rotation, or succession, which enhances large-scale sustainable systems contributing to global food security. Moreover, the livestock systems are mostly forage-base and the off-season is the most challenging period of the year. Thus, mixed pastures established after cropping soybean can greatly enhance the herbage accumulation in crop-livestock systems. Besides, fertilization is not a common practice during the off-season, however, in the Amazon Biome there is temperature or photoperiod restrictions. Our objective was to evaluate the fertilization effect on the mixed of *Sorghum bicolor* (L). Moench cv. BRS 810 with *Urochloa ruziziensis* during the off-season in Sinop, MT, Brazil.

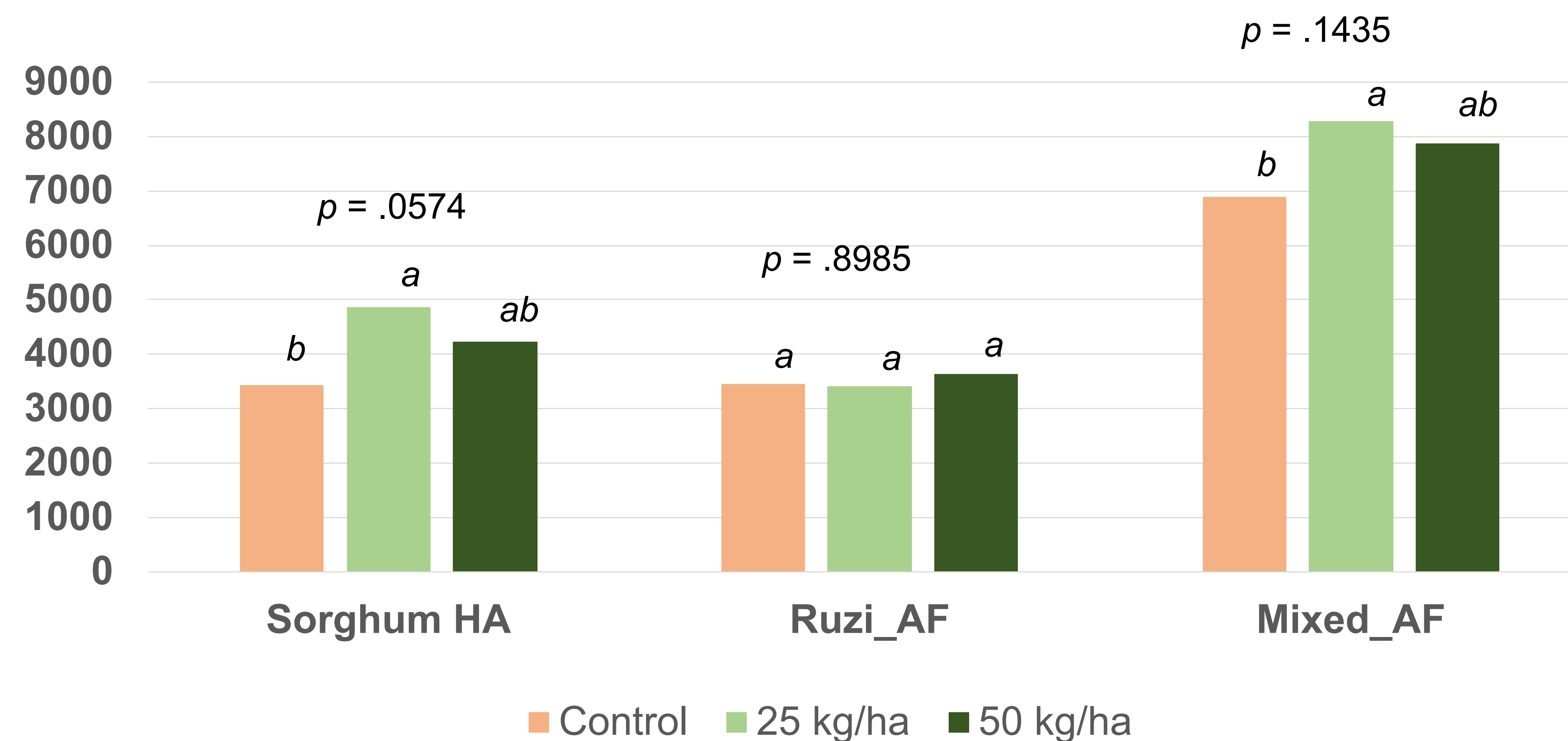
Materials and Methods

- The trial was carried out in Sinop - MT, Brazil
- From 10 Mar. to 15 Jun. 2020;
- Two species: *Sorghum* BRS 810 and *U. ruziziensis*;
- Randomized complete block, with three replicates, totaling nine experimental units;
- Each unit was 7 x 8 m, including 14 rows of Sorghum;
- Treatments: 0, 25, and 50 kg/ha of N and K in the form of urea + ammonium sulphate and potassium chloride, applied on 2 Apr.;
- Herbage mass was harvested using two quadrats (0.5 m²) per plot, at 20-cm stubble height. The first harvest was on 20 Apr. (when the sorghum canopy height was higher than 120 cm), the second harvest on 18 May and the third on 15 Jun.



Results

The fertilization input did not affect *Urochloa ruziziensis* HA (3505 kg DM/ha). The *Sorghum bicolor* HA was the greatest under 25 kg/ha of fertilizer (4870 kg DM/ha), and the control was the least (3435 kg DM/ha). The input of 50 kg/ha of fertilizer was similar to both, averaging 4240 kg DM/ha. The mixed HA (*Urochloa ruziziensis* + *Sorghum bicolor*) was similar regardless of the fertilizer input (on average, 7690 kg DM/ha).



Conclusion

The mixed pasture contributes to increasing the forage accumulation during the off-season. The input of 25 kg of N and K per hectare resulted in greater *Sorghum bicolor* herbage accumulation than the control.