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EVALUATION OF PALISADE GRASS GROWTH IN DIFFERENT CROP LIVESTOCK SYSTEMS

AVALIAÇÃO DO CRESCIMENTO DO CAPIM-MARANDU EM DIFERENTES TIPOS DE IMPLANTAÇÃO DE INTEGRAÇÃO LAVOURA-PECUÁRIA.

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Currently the use of crop-livestock integration systems has been successfully used to achieve economic and environmental benefits. However, management decisions in this type of system are more difficult because it is necessary to base decisions on plant production and animal performance. The plant height is an indication of crop and pasture development and the leaf area index (LAI) establishes a correlation between light interception (LI) and biomass production. Percentages of leaf, stem and dead material are important to animal performance. This study aimed to evaluate the percentages of leaf, stem, dead material, height, leaf area index and light interception of palisade grass in four different types of crop-livestock systems, after corn harvest. The experiment was conducted at the Institute of Animal Science in Sertãozinho, Sao Paulo state. We used a completely randomized block design with three replications and four treatments: corn and palisade grass seeded simultaneously (CG), corn and palisade grass seeded simultaneously plus herbicide (CGH), corn and palisade grass seeded at corn top dressing fertilization (CGT), and corn and palisade grass seeded in the row and inter-row of corn plus herbicide (CGL). All treatments were implemented in December 2015 and the corn was mechanically harvested in May 2016. Six Caracu bulls in each treatment were allocated to grass paddocks in the third month of evaluation. The interval between characteristics measured and pasture collections was 28 days, totaling 6 months of collection. Palisade grass height was measured using a graduated scale and LAI and LI using an Accupar LP-80 ceptometer. For determination of grass dry mass, four squares of 0.5 m^2 each per plot were established and all material inside the plot was collected. The samples were sent to the laboratory to separate leaf, stem and dead material and then dried in an air circulation oven for 72 h at 65 ºC, followed by weighing. The PROC MIXED routine of SAS® was used to analyze the data. Average heights of CG, CGH, CGT and CGL were, respectively, 35.94 cm, 33.79 cm, 29.85 cm and 34.94 cm. There was no significant difference (P=0.3728) between average grass height of CGH and CGL, which can be explained by the herbicide used to delay pasture growth in relation to corn. The late planting of grass in the CGT treatment, in order to decrease the competition between the cultures, is probability the reason for the lower grass height. Significant growth over the months could be observed until the third month of evaluation, followed by reduction of height in each successive collection, due to the entry of grazing animals. The LAI increased over the weeks until the second month of evaluation, when 95% of LI was achieved in CG, CGH and CGL, which means that the grazing animals started at the correct time. The leaf percentage started to decrease at the third month of evaluation because the animals first graze on the leaves. The CGT treatment took more time to achieve 95% light interception because it was planted later. There was no significant difference in leaf, stem and dead material percentages between CG and CGL treatments. In these treatments, there were more stems and dead material in relation to leaves, which means that the pasture growth lengthened the stems because of the corn competition. It is possible to conclude that the ideal moment to start animal grazing, based on the grass height or on the LI, will be different depending on the type of crop-livestock system. The percentages of leaf, stem and dead material will result in different animal performance, which means different economic performance of the system.

Keywords: leaf area, light interception, plant height