



Biomass in pastures with indicatives of degradation in the watershed of Alto Tocantins in Brazilian Savanna

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The remote sensing techniques have been instrumental, for example, in studies of land use and land cover with high relevance for the rational use of natural resources allying economic and environmental sustainability. This study aimed to apply the algorithm Surface Algorithm For Retrieving Evapotranspiration (SAFER) and MODIS images together with field measurements in order to analyze the biomass (BIO) in each class with indicatives of degradation of the potential production of pasture in the Watershed Alto Tocantins. Series of MODIS images of the year 2012 together with data from weather stations provided by the National Institute of Meteorology (INMET) were used. For the year 2012 it was observed that BIO in the low degradation class was very close to the values found for the pasture areas of non-degraded class, and in some periods the class of low degradation had BIO values equal or greater than found for the non-degraded class. In this case, in the driest period of the year there was no BIO differences between classes with low degradation and non-degraded. Thus, the average BIO of these two classes was around $50 \text{ kg ha}^{-1} \text{ day}^{-1}$. Factors related to pasture management and spatio-temporal heterogeneity of rainfall throughout the year may have influenced these results. For the classes of moderate and strong degradation were found BIO the order of 45 to $31 \text{ kg ha}^{-1} \text{ day}^{-1}$, respectively. The average BIO annual from all areas of pastures in the Watershed Alto Tocantins was $16,000 \text{ kg ha}^{-1} \text{ yr}^{-1}$. These results indicate significant loss of potential production of pasture areas.

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