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## RESUMO

The production of beef cattle in Brazil has been growing over the years. To meet the food demand of these animals, it is necessary to provide pastures that support such growth. In this sense, the objective of this work was to evaluate the effect of irrigation and mixture with legumes on the production of forage in pasture of an African star pasture overseed with winter species. The experiment was carried out in the Beef Cattle Unit of the Universidade Tecnológica Federal do Paraná (UTFPR), campus Dois Vizinhos. The experimental design was completely randomized, containing four treatments: exclusive grasses (G), grasses + legumes (GL), exclusive grasses + irrigation (GI), grasses + legumes + irrigation (GLI), with three replicates each. In the whole experimental area, ryegrass (*Lolium multiflorum*) was sown with a seeding rate of 30 kg.ha<sup>-1</sup>, and black oats (*Avena sativa*) with a density of 80 kg.ha<sup>-1</sup> were sown under no-till system. Legumes were sown in six alternating modules, 15 kg.ha<sup>-1</sup> of vetch (*Vicia sativa*) seed was sown between the rows of oats and the white clover (*Trifolium repens*) sown with a seeding rate of 5 kg.ha<sup>-1</sup>. The area was grazed by 24 Angus calves in a rotating grazing system within each treatment. In the winter, the GLI treatment was superior in relation to the production of total forage (7245 kg DM.ha<sup>-1</sup>), ryegrass production (379 kg DM.ha<sup>-1</sup>), of ryegrass leaf (871 kg DM.ha<sup>-1</sup>) and vetch (179 kg DM.ha<sup>-1</sup>), and herbage accumulation rate (HAR - 48 kg DM.ha<sup>-1</sup>.day<sup>-1</sup>). However, in spring the GI was superior in the production of total forage (8188 kg DM.ha<sup>-1</sup>), ryegrass stem (146 kg DM.ha<sup>-1</sup>) and ryegrass leaf (200 kg DM.ha<sup>-1</sup>), and HAR (89 kg MS.ha<sup>-1</sup>.day<sup>-1</sup>) compared to treatments G and GL. And it was superior to GLI in the production of ryegrass stem (26 kg DM.ha<sup>-1</sup>) and ryegrass leaf (75 kg DM.ha<sup>-1</sup>). In summer, GL showed greater values than the other treatments in the production of forage (11,792 kg DM.ha<sup>-1</sup>) and HAR (123 kg DM.ha<sup>-1</sup>.day<sup>-1</sup>). Irrigation provided a greater production of legumes, both in winter (225 against 154 kg DM.ha<sup>-1</sup>) and in spring (179 against 120 kg DM.ha<sup>-1</sup>). Due to climatic variations within each season, and, consequently, different responses to treatments, total production (winter + spring + summer) and HAR were not influenced by the treatments. This result demonstrates that irrigation must be used with discretion so as not to compromise the economic results of the system.

**PALAVRAS-CHAVE:** Forage and pasture, Intercropping, Grasses, Legumes, Irrigation

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