

PRODUCTIVE RESPONSES OF THE SILAGE WHEAT CULTIVAR MGS BRILHANTE WITH DIFFERENT LEVELS OF NITROGEN TOPDRESSING FERTILIZATION

RESPOSTAS PRODUTIVAS DA CULTIVAR DE TRIGO MGS BRILHANTE DESTINADA A PRODUÇÃO DE SILAGEM, EM FUNÇÃO DE NÍVEIS DE ADUBAÇÃO NITROGENADA EM COBERTURA

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Abstract

The Agricultural Research Company of Minas Gerais (EPAMIG) has developed a wheat cultivar, MGS Brilhante, which does not have an awn and adapts well to different regions of the state. Thus, it is being evaluated as an alternative for the production of silage in the offseason, so far proving to be quite promising. Thus, the objective of this work was to evaluate the productive response of the wheat cultivar MGS Brilhante submitted to different levels of nitrogen fertilization. The study was conducted in the Experimental Center of Vale do Piranga, of EPAMIG, in the municipality of Oratórios, Minas Gerais. Four levels of nitrogen fertilization as topdressing, in the form of agricultural urea, were tested: 50, 100, 150 and 200 kg N ha⁻¹, in addition the control, without the covering fertilization. The design adopted was in randomized blocks, with five treatments and four replications per treatment, totaling 20 experimental plots. These plots were planted on May 10, 2022, received topdressing fertilization on June 15, 2022, and were harvested and evaluated for yield on August 1, 2022. Dry matter content, dry matter productivity, plant height and lodging rate were evaluated. All data were submitted to analysis of variance and were considered significant at 5% probability. The yield and plant height data were submitted to linear regression analysis. For the average dry matter content, analysis was performed based on the Tukey test. All statistical analyses were performed using the SISVAR 5.6 software. No lodging was observed in any experimental plot. There was a significant difference ($P=0.015$) in the dry matter contents between the treatment that did not receive any top dressing and the treatments that received doses of 150 and 200 kg N ha⁻¹, and the control treatment had the highest dry matter content (31.42%, 26.75% and 26.55%, respectively). Regarding dry matter productivity and plant height, both variables showed high positive correlation coefficients with fertilizer doses ($R^2=86.95\%$ and $R^2=98.21\%$, respectively). Average yields of 4.77, 6.00, 6.52, 6.54 and 7.10 tons DM ha⁻¹ and average plant height were found of 1.15, 1.17, 1.22, 1.25 and 1.28 meters in the treatments with 0, 50, 100, 150 and 200 kg N ha⁻¹, respectively. Nitrogen is a macronutrient that is used in the plants' photosynthesis process and stimulates increased solar radiation absorption. This means that the greater supply of this nutrient to the plant leads to higher biomass production, because it stimulates the tillering of plants and also increases leaf area. This is the explanation for the increase in plant size and wheat crop productivity with higher doses of nitrogen. The higher dry matter content found in the control treatment, even with all the experimental plots having the same cultivation period, can be explained by the lower leaf area index produced, which caused the proportions of stems and ears, which have lower moisture content, to be higher in these plants. Based on the edaphoclimatic conditions of the region, we can conclude that the MGS Brilhante cultivar responds linearly in productivity with the increase in the nitrogen dose, but the cost-benefit ratio of the increment of these doses applied to the crop for silage production should be considered.

Keywords:

Dry matter content, forage conservation, green matter production.

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Fapemig, INCT-Ciência Animal, Finep.