

## **Production of green biomass and dry biomass of wheat cv. BRS Umbu subjected with two conservation systems and two levels of nitrogen fertilization**

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**Introduction** Although the use of winter cereal silage is unusual in Brazil, in regions where climatic instabilities occur during winter, there is an increasing use of these forages in comparison with corn and wheat is one of the more interesting because of its nutritional qualities (BUMBIERIS JR. et al., 2011). The objective is to demonstrate the results of green biomass production and dry matter of silage and hay produced with wheat cv. BRS Umbu dual purpose, evaluating two conservation systems and two levels of nitrogen fertilization.

**Materials and Methods** The project was conducted on the Center of Animal Production (NUPRAN) on the premises of the Department of Agricultural and Environmental Sciences of the Midwest University - UNICENTRO in Guarapuava - PR, located in the subtropical zone of Paraná. The climate according to Köppen classification is temperate altitude - Cfb (Subtropical humid mesothermal), with mild summers and mild winters with no dry season and severe frosts. The area of the experiment has a soil classified as Oxisol Typical. The sowing of wheat was made on May 13, 2011 with spacing of 17 cm sowing depth of 04 cm and seeding rate of 220 seeds / m<sup>2</sup>. The planting fertilization was 400 kg ha<sup>-1</sup> of 08-30-20 formulation. The covering fertilization was done with urea (45-0-0). In the treatments with 120 kg ha<sup>-1</sup> nitrogen, coverage was performed in a single application 30 days after emergence. In the treatment with 180 kg ha<sup>-1</sup> nitrogen coverage was performed 30 and 60 days after emergence at rates of 120 kg ha<sup>-1</sup> and 60 kg ha<sup>-1</sup> respectively. The total experimental area was 312 m<sup>2</sup>, and each plot had 9.75 m<sup>2</sup>. The experiment design was a randomized block with 8 treatments and 4 repetitions. The cuts for silage and hay were carried out in stages of dormancy, flowering and mealy grain. After evaluation of green biomass, the material was dried in forced-air oven at a temperature of 55 ° C and evaluated after weight stabilization of the dry biomass. The results were submitted to analysis of variance and the averages were compared by Tukey test at 5% probability.

**Results and Discussion** In Table 1 is described the production of green and dry biomass weight of wheat cv. BRS umbu subjected to two systems of conservation, silage and hay, under two levels of nitrogen fertilization. Yield was higher (P <0.05) of dry biomass in silage and hay in the mealy grain stage compared to silage conservation system in pre-flowering and pre-flowering hay. Similar result to that found by FLOSS et al (2003) with oat, where the dry matter yield ranged from 6900 kg ha<sup>-1</sup> at flowering to 11,400 kg ha<sup>-1</sup> at the stage of grain into stiff dough. It was also observed higher productivity (P <0.05) of green biomass and dry biomass when the

level of nitrogen applied was 180 kg ha<sup>-1</sup> compared to 120 kg ha<sup>-1</sup>. The effects of additional nitrogen in wheat were obtained by Caviglia & Sadras (2001) ranging from 6350 kg ha<sup>-1</sup> in the absence of nitrogen, and 12420 kg ha<sup>-1</sup> with nitrogen.

**Table 1** Production of green biomass and dry biomass of wheat Cv. BRS Umbu subjected two preservation systems and two levels of nitrogen fertilization

Conservation system	Fertilization levels		Average
	120 Kg.ha <sup>-1</sup>	180 Kg.ha <sup>-1</sup>	
	Green Biomass Production, Kg.ha <sup>-1</sup>		
Silage in pre-flowering stage	23502	26856	25178 a
Silage in mealy grain stage	19615	21678	20646 b
Haying in pre-flowering stage	23542	27207	25374 a
Haying in mealy grain stage	20695	23174	21934 b
Average	21838 B	24728 A	
	Dry Biomass Production, Kg.ha <sup>-1</sup>		
Silage in pre-flowering stage	4597	5020	4808 b
Silage in mealy grain stage	9301	10284	9792 a
Haying in pre-flowering stage	4741	5224	4982 b
Haying in mealy grain stage	9637	10704	10171 a
Average	7068 B	7808 A	

Averages followed by capital letters in the row differ by F test at 5%. Averages followed by lower case letters in the column differ by Tukey test at 5%

**Conclusions** The conservation system silage and hay in mealy grain stage with nitrogen level of 180 kg ha<sup>-1</sup> produced the highest biomass accumulation.

### References

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