

Morphology evaluation of two corn hybrids for silage in Guarapuava – PR

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Introduction Corn silage is an alternative to bulky food in both intensive, beef or dairy cattle production chain, not only in terms of the indices of crop productivity and stability of production, but also for the great nutritional value and energy concentration (Neumann, 2006). The aim of this study was to evaluate the morphology of two corn hybrids for silage.

Materials and Methods In the present experiment, it was evaluated two corn hybrids for silage. The planting was carried out in commercial farm in Guarapuava - PR. The climate according to the 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. Were harvested twenty plants of each hybrid in the physiological dough subsequently underwent ratings and processed on the premises of the Center for Animal Production (NUPRAN). The plant height, ear height, plants weight, number of dry leaves and number of green leaves, green matter (GM) and dry matter (DM) production were measured. After this, the material was dried in an oven with forced air circulation at a temperature of 55°C and evaluated after stabilization of biomass dry weight.

The experimental design was a randomized block design with two blocks, two treatments and 10 repetitions. The collected data for each variable were subjected to variance analysis to compare means at the 5% significance through the SAS (2004).

Results and Discussion: The data concerning the morphology and composition of dry and green biomass of the two varieties of corn for silage are shown in Table 1.

Table 1 Morphological composition and production of green and dry weight of two corn hybrids for silage production

Parameters	Corn Hybrids		Average	SD ²	CV ³ (%)
	2B688Hx	P30B39H			
Plant Height (cm)	216.3 A	219.2 A	217.75	11.58	5.32
Ear Height (cm)	115.3 A	116.85 A	116.08	9.47	8.16
Plant Weight(kg)	1.10 A	0.76 B	0.93	0.27	28.83
Green Leaves	11.5 A	8.95 B	10.23	2.03	19.87
Dry Leaves	2.8 A	4.3 A	3.55	1.24	34.91
% DM	35.5 A	34.7 B	35.13	0.44	1.24
Production GM/ha ⁻¹ (kg) ¹	77133 A	52938 B	65035	18750	28.83
Production DM/há ⁻¹ (kg) ¹	27427 A	18367 B	22897	6791	29.66

¹Production equated to a population of 70.000 plants / ha⁻¹

²SD = Standard deviation

³CV = Coefficient of variation

There were significant differences ($P < 0.05$) for the variables weight of plants, green leaves, percentage of dry matter and yield of green biomass and dry biomass per hectare. The weight parameter plant has a direct correlation with the Green biomass, thus, the hybrid 2B688Hx had much higher performance, both in weight, but also with respect to production of green biomass and consequently of dry biomass with respect the hybrid P30B39H being likewise greater than indicated by Beleze et al. (2003) evaluated the morphological characteristics of five corn hybrids for silage. The amount of green leaves is also an important finding, and is directly related to the stay green plant, ensuring greater cropping window for silage production (Wilkinson and Hill, 2003). The hybrid 2B688Hx was also superior in this regard when compared with the P30B39H (11.5 vs. 8.95).

Regarding the production of green biomass and dry biomass corroborate the findings of Pinto et al. (2010) evaluated twelve different hybrids and found that among the hybrids, there was minimal difference in the production of dry matter per hectare, with better performance hybrid TORK. It is the exception that the dry is essential, since it represents the fraction that has the nutrients, which reflect the performance of the animals, so as to beef or dairy production (Berchielli et al., 2011). The dry matter observed in the present study was in agreement with the recommended values for silage, depending on the maturity stage, comprising 32 to 35% of DM according Zopollatto et al. (2009).

Conclusion: Through the final analysis, it can be concluded that the hybrid 2B688Hx outperformed the hybrid P30B39H in terms of higher plants and higher weight percentage of dry biomass and green biomass per hectare, and also higher amounts of green leaves.

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