

Composition of corn hybrids harvested as silage at Guarapuava PR

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Introduction The maturity stage of corn crop harvest as silage is the parameter that can affect production by dry matter accumulation and silage quality by modifying the plant chemicals that have direct relation with agronomic parameters, nutritional quality and bioeconomic response (OLIVEIRA, 2010), and it is precisely the most common mistake observed in such process, a fact that highlights the importance of research in the stages of corn crop harvest as silage. The aim of this study was to evaluate the plant composition from several corn hybrids harvested as silage at Guarapuava PR.

Material and methods The experiment was developed at Animal Production Center (NUPRAN) of the Agricultural and Environmental Sciences Department from the Midwest State University (UNICENTRO) located in Guarapuava, PR. It was evaluated plant physical structure and dry matter from six different corn hybrids: SG 6030 YG, LG PRO 6036, PRO 6038 LG, BRAS 3010, PL 6880 and PL 1335. Whole plant samples (original material) of each treatment were obtained in a homogeneous and representative form, weighed and dried in a forced-drought oven at 55 °C. After 72 hours drying in forced-air oven, they were weighed again to determine dry matter (DM), according to AOAC (1984).

The experiment was conducted in a completely randomized design with four replications and six treatments: SG YG 6030, PRO LG 6036, LG 6038 PRO, BRAS 3010, PL 6880 and PL 1335. The collected data for each parameter were subjected to variance analysis with mean comparison at the significance level of 5% by Tukey test, through the SAS (1993).

Results and discussion Table 1 shows plant dry matter and plant components from six corn hybrids harvested as silage in Guarapuava PR. There were not significant differences ($P < 0.05$) among hybrids for whole plant dry matter (DM) and plant structural components: stem, leaves and bracts and cob, with average values of 20.16%, 26.03% and 31.74%, respectively. For grains component were found differences ($P > 0.05$) in dry matter. The hybrids LG PRO 6038 (58.47%), SG 6030 YG (59.31%), LG PRO 6036 (59.92%) and BRAS 3010 (63.12%) stood out, showing higher DM in grains, which makes them interesting for silage, because hybrids for this purpose need greater deposition of starch in the grain filling up stage, due to better "stay green" at plants harvest for silage or better starch deposition rate during grain filling up when compared with hybrids PL 6880 and PL 1335 with grain DM values of 55.87% and 54.47% respectively.

Oliveira (2010) found in his experiment also located in Guarapuava with corn hybrid AS-1545 values of dry matter for stem 23.7%, leaves 26.5%, bracts and cob 26.8%, grain 40% and whole plant 27.8%, showing that the hybrids studied in this work stood out, especially BRAS 3010 that obtained 23,12% more dry matter in grain than the hybrid AS-

1545, and this component is directly linked with silage quality, because as increases the share of grains increases the silage quality (Paziani et al, 2009).

Table 1 Average levels of plant dry matter and botanical composition at 133 days after emergence of corn plants

Hybrids	Dry matter content, %				
	Component				
	Stem	Leaf	Bracts/cob	Grain	Whole plant
LG 6038 PRO	21.08 ^a	25.89 ^a	33.26 ^a	58.47 ^{ab}	33.75 ^a
LG 6036 PRO	20.99 ^a	24.14 ^a	33.22 ^a	59.92 ^a	33.00 ^a
SG 6030 YG	18.99 ^a	26.08 ^a	33.22 ^a	59.31 ^a	32.21 ^a
BRAS 3010	18.42 ^a	26.23 ^a	31.88 ^a	63.12 ^a	31.68 ^a
PL 6880	22.00 ^a	25.66 ^a	31.30 ^a	55.87 ^b	33.20 ^a
PL 1335	19.49 ^a	28.16 ^a	28.21 ^a	54.47 ^b	33.34 ^a
Average	20.16	26.03	31.74	58.53	32.84
P>F	0.4864	0.6884	0.1673	0.0009	0.8060
CV*	14.35	12.60	8.80	3.79	6.96

Averages in the same column followed by different letters for each variable differ by Tukey test at 5%.

*CV: Coefficient of Variation

Conclusion The hybrids LG6038PRO (58.47%), SG6030YG (59.31), LG6036PRO (59.92%) and BRAS3010 (63.12%) had the highest values for grain dry matter, which implies in better silage quality, but for other components evaluated, leaves, stems, bracts and cob the hybrids did not differ statistically.

References

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