

Hardness influence on corn silage quality

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Introduction Among the forms of forage conservation, silage is the most widely used to reduce the lack of forage. Corn is the forage that has the most important nutritional characteristics. New genotypes are released annually in the market, thus requiring the characterization of these as its purpose (grain or silage). The search for genotypes with better features morphological and productive of interest for the production of silage has been the aim of some research, directing the production system for best results. Thus, the aim of this work was to evaluate the influence of grain hardness (hard, semi-hard and soft) chemical quality and agronomic characteristics of corn genotypes for the production of silage maize genotypes Super Early testing center.

Material and Methods The experiment was conducted at the experimental area of the “Universidade Tecnológica Federal do Paraná, Dois Vizinhos campus”. Genotypes were supplied by Embrapa Maize and Sorghum (Sete Lagoas, MG, Brazil) corresponding to the test center, where 32 genotypes were evaluated Cycle Super-Early (Table 1). The plots were composed of two rows of five meters in length spaced 75 cm between rows and approximately 23 cm between plants. Data were subjected to analysis of variance in lattice design, and the means of groups of corn (hard, semi-hard and soft), were compared between them, by means of contrasts (Scheffé).

Results and Discussion The mean contrast between the type of grain (semi hard, hard and soft) when compared to each other had no significant effect for any of the contrasts (Table 2). Rossi Junior et al. (2006) observed the same in trials evaluating two hybrids of different groups of grains (half-soft and soft), where no significant differences in variables were obtained chemical quality [dry matter (%), crude protein (%), neutral detergent fiber (%) and acid detergent fiber (%)], only digestibility.

Conclusions The characteristic grain hardness does not influence the quality of silage produced.

References

Rossi Júnior, P.; Fugisawa, A.C.; Schogor, A. L. B. Muraro, G. B. 2006. Digestibilidade aparente de dois cultivares de milho, cortados em diferentes alturas, submetidos à ensilagem, Arq. of Vet. Sci., v.11, n.3, p.58–61.

Table 1 - Genotype (GEN), trade name, genetic (BG), hardness of the grain (DG), producer (EMP) testing of genotypes belonging to Early Super Center.

Gen.	Comercial Name	BG*	DG**	EMP***	Gen.	Comercial Name	BG	DG	EMP
1	AS1555YG	HS	NI	AGR	17	BRSSint.Super	VAR	SD	BRS
2	AS1572YG	HS	SD	AGR	18	GNZ2500	HS	NI	GNZZ
3	AS1578YG	HS	SD	AGR	19	GNZX0743	HS	SD	GNZZ
4	30A37	HS	SD	AGN	20	PRE12S12	HS	SD	PRE
5	30A77	HS	NI	AGN	21	PRE22S11	HS	SD	PRE
6	20A78	HT	SD	AGN	22	PRE22T10	HT	SD	PRE
7	Dx908	HS	D	DX	23	PRE22T12	HT	SD	PRE
8	Dx603	HT	SD	DX	24	PREXT0109	HT	DM	PRE
9	2A550	HT	SD	DOW	25	PRE22D11	HD	SD	PRE
10	2B587	HS	SD	DOW	26	SHS-7090	HS	SD	SHS
11	2B433	HS	NI	DOW	27	SHS-7111	HS	SD	SHS
12	AL2007A	Var	SD	CATI	28	XBX80822	HS	SD	Semeali
13	H2002ALTA	HI	D	CATI	29	AG9040	HS	SD	BRS
14	H25ALTA	HI	SD	CATI	30	Dow2A106	HS	SD	BRS
15	Embrapa1F640	HS	NI	BRS	31	BRS3035	HT	SD	BRS
16	BRSgorutuba	Var	NI	BRS	32	DKB330YG	HS	D	BRS

* Genetic Basis: HS – simple hibrid, HT – triple hibrid, Var – open polinization, HD – double hibrid, HI – intervartietal hibrid; ** grain hardness: NI – don't informed, SD – half-hard, D - hard, DM - half-soft; *** Business: 1: Agroeste, 2: Coodetec; 3: Delta; 4: DI SOLO; 5: Syngenta Seeds; 6: Embrapa; 7: Prezzotto; 8: Santa Helena Sementes; 9: Pioneer Sementes; 10: Instituto Agronômico de Campinas; 11: Agromen Tecnologia; 12: Biomatrix; 13: Gêneze Sementes; 14: Dow AgroSciences; 15: DSMM/CATI e 16: Semeali.

Table 2 - Contrasts average testing super center early in the type of grain.

Var	SD	D	DMS	CV	SD	DM	DMS	CV	D	DM	DMS	CV
EP	2.28	2.37	0.32	1.26	2.38	2.37	0.53	1.26	2.37	2.37	0.60	1.260
NP	58701	61905	14759	2.35	58701	62143	24520	2.35	61905	62143	27691	2.35
MV	59625	65909	22155	3.36	59625	75641	36806	3.36	65909	75641	41566	3.36
MSE	0.50	0.47	0.10	2.02	0.50	0.49	0.17	2.02	0.47	0.49	0.19	2.02
EF	474.00	452.00	296.00	6.16	474.00	536.00	492.00	6.16	452.00	536.00	556.00	6.16
MSP	0.32	0.30	0.07	0.00	0.32	0.31	0.11	0.00	0.30	0.31	0.13	0
MSH	18.84	19.67	8.69	4.15	18.84	23.23	14.43	4.15	19.67	23.23	16.30	4.15
PB	7.23	7.38	2.65	3.50	7.23	8.18	4.40	3.50	7.38	8.18	4.97	3.5
ADF	27.38	26.15	17.32	6.29	27.38	21.18	28.77	6.29	26.15	21.18	32.49	6.29
NFF	50.10	47.56	20.19	3.97	50.10	42.92	33.55	3.97	47.56	42.92	37.89	3.97
TDN	68.81	69.62	11.33	1.56	68.81	72.92	18.83	1.56	69.62	72.92	21.26	1.56
ELL	1.55	1.59	0.47	2.90	1.55	1.72	0.79	2.90	1.59	1.72	0.89	2.9

*Var: characteristics; D: hard; SD: semi-hard; DM: soft, least significant difference (DMS) e coefficient of variation (CV) for the characteristics plant height (EP, m), number of plants per acre (NP), dry cob (MSE, %), effluent release (EF, gramas) e total plant dry matter (MSP, %), dry matter per acre (MSH, t/ha), crude protein (PB, %), acid detergent fiber (ADF, %), neutral detergent fiber (NDF, %), digestible nutrients total (TDN, %), net energy of lactation (ELL).