Botanic composition of corn hybrids cultivated in two regions of Guarapuava-PR

D.N. Figueira[1], M. Neumann[2], J.S. Maculan[3], B. Fianco[4], C.A. Spada[5] and L.F. Perussolo[6]

[1]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: danmedvet07@gmail.com, [2]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: mikaelneumann@hotmail.com, [3]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: josy_smi@hotmail.com, [4]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: bruno.fianco@hotmail.com, [5]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email:spadacecilia@hotmail.com, [6]State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: leticiaperusso@hotmail.com.

Introduction In Brazil, corn presents good adaptability, high dry matter yield and facility of fermentation, a high nutritional value and acceptability by animals, because of this is the material most used for silage yield (Oliveira et al., 2007). This study aimed to evaluate the agronomic characteristic of different corn hybrids for silage cultivated in two different locations.

Materials and Methods The experiment was conducted by the Center for Animal Production (NUPRAN), Department of Agricultural and Environmental Sciences of the State University Midwest (UNICENTRO) in Guarapuava, PR. We evaluated the percentage of stems, leaves, cob more straw and grain structure of the plant. Six corn hybrids simple (P1630H, P2530, AS1555PRO, 30R50H, 30F53H and X40B143H) associated with two cultivation sites (Location A: located latitude S25°34'513" longitude W51°41'576" and Location B: located at latitude S25°42'480" longitude W51°56'795"). The planting of the experimental fields was in no-tillage, sowing in plots consisting of 4 planting rows with 7 linear meters each, being used as a useful area for evaluations 5 linear meters of each plot. The experimental fields of property A and B were deployed on September 30, 2012, with spacing of 0.55 and 0.45 cm between rows, respectively. Corn plants were harvested at 20 cm in the reproductive stage of hard grain (R5), to evaluate the dry matter content of the plant in order to produce the whole plant silage. All plants contained in the area of each plot were individually weighed to determine the percentage share of stem, leaves, cob more straw and grains per unit area (kg ha-¹). Homogenous and representative samples of each component of each treatment were obtained and weighed and pre-dried in a forced air oven at 55 ° C. After 72 hours of oven drying, they were weighed again to determine the dry matter content (DM), according to AOAC (1984). The experiment was a completely randomized design with four replications, in a 6 x 2 factorial, consisting of 12 treatments. The data collected for each parameter were subjected to analysis of variance with comparison of means at the significance level of 5% by Tukey test.

Results and Discussion Table 1 presents the data of percentage share of stem, leaves, cob more straw and grain structure of different corn hybrids cultivated in two locations at the time of silage production. The percentage of stems and bracts more cob (dry matter basis) had no statistically significant difference (P> 0.05) among the hybrids evaluated. The corn hybrid 30R50H leaves showed higher mean (24.0% DM) compared to other hybrids. The percentage of grain had higher averages in hybrid AS1555PRO, 30R50H and X40B143H, with mean values of 41.6, 40.9, 42.7, respectively. The percentage share of stem showed no statistical difference (p> 0.05), in agreement with the work of Neumann (2008) compared the two regions evaluated in the study. When assessing the percentage of leaves, it was observed that

the site A had the highest average, 24.4% of DM, compared to region B. For the percentage of bracts more cob, region A presented the highest average, 23.8% in DM compared to region B. The percentage share of grain dry matter showed higher average in region B, with a value of 43.3% in DM.

Table 1 Percentage share of stem, leaves, cob more straw and grain structure of the plant different corn hybrids cultivated in different locations at the time of silage production (Crop 2012/2013, Region of Guarapuava-PR).

Local cultivation	Hybrids						Average
	P1630H	P2530	AS1555PRO	30R50H	30F53H	X40B143H	
				stem, % of DM			
A	16.5	16.7	14.5	11.5	15.4	13.7	14.7 a
B	13.6	15.2	12.5	11.8	23.2	12.0	14.7 a
Average	15.1A	16.0A	13.5[a]	11.7A	19.3A	12.9A	
				leaves, % of DM			
A	24.3	23.1	20.5	28.7	21.4	28.4	24.4 a
B	18.5	22.4	20.1	19.3	14.5	15.1	18.3 b
Average	21.4ABC	22.8AB	20.3BC	24.0A	18.0C	21.8AB	
				cob more straw, % of DM			
A	22.8	22.9	25.1	23.8	25.0	23.0	23.8 a
B	19.6	21.3	24.2	23.0	21.7	22.3	22.0 b
Average	21.2A	22.1A	24.7[a]	23.4A	23.4A	22.7A	
				grains, % of DM			
A	36.3	37.3	39.9	35.9	38.1	34.8	37.1 b
B	38.2	41.1	43.2	45.9	40.5	50.6	43.3 a
Average	37.3B	39.2AB	41.6[a]	40.9A	39.3AB	42.7A	

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

Conclusion The hybrids showed good adaptability to the region with average share percentage of stem, leaves, bracts more cobs and grains satisfactory.

References

Association of Official Analytical Chemists - A.O.A.C. Official methods of analysis. 14.ed. Washington, D.C., 1984. 1141p.

Neumann, M.; Ost, P.R.; Pellegrini, L.G. de; Defaveri, F.J.; Comportamento de híbridos de milho (*Zea mays*) e sorgo (*Sorghum bicolor*) para silagem na região centro-sul do Paraná. Ambiência, Guarapuava, v. 4, n.2, p. 237-250, 2008.

Oliveira, J.S.; Souza Sobrinho, F. de; Lanes, E.C.M. De; Almeida, E.J.D. de;
Avaliação de cultivares para silagem: resultado do ano agrícola 2005/2006. Circular técnica 91. Juiz de Fora. Minas Gerais, 2007.