

## Yield of different corn hybrids cultivated in two regions of Guarapuava-PR

D.N. Figueira<sup>1</sup>, M. Neumann<sup>2</sup>, L. K. Cescon<sup>3</sup>, K. Pegoraro<sup>4</sup>, D. Cecchin<sup>5</sup> and R. Carletto<sup>6</sup>

<sup>1</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: danmedvet07@gmail.com, <sup>2</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: mikaelneumann@hotmail.com, <sup>3</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: amanda\_goldoni@hotmail.com, <sup>4</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: kady\_p@hotmail.com, <sup>5</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: dani\_el135@hotmail.com, <sup>6</sup>State University Midwest, Guarapuava, Paraná 85040-080, Brazil, Email: rodolfoarletto@hotmail.com

**Introduction** The adoption of silage as forage became a very developed technique between terminators beef cattle feedlot (ROSA et al., 2010). This study aimed to evaluate the agronomic characteristics in 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. It was evaluated the production of dry biomass, green biomass and grain of six corn simple hybrids (P1630H, P2530, AS1555PRO, 30R50H, 30F53H and X40B143H) associated with two cultivation sites (Location A: located at 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 planted 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 production of green biomass, dry biomass and grain yield per unit area (kg ha<sup>-1</sup>). The whole plant samples from each treatment were obtained in a homogenous and representative; 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, obtained by the association of six hybrids (P1630H, P2530, AS1555PRO, 30R50H, 30F53H and X40B143H) and two cultivation sites. 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 for the production of green biomass, dry biomass and grains yield of different corn hybrids cultivated in two locations at the time of silage production. For the green biomass yield the average of 85,270 kg ha<sup>-1</sup> for hybrid X40B143H was significantly different from other hybrids. The work of Galak, 2011, using various corn hybrids showed lower means on the production of green biomass. In regards to the dry biomass yield, hybrids P2530, 30R50H, 30F53H had higher values than the other hybrids evaluated, averaging 30,919, 30,991 and 30,088 kg ha<sup>-1</sup>, respectively. Grain yield showed no statistical difference among hybrids (P> 0.05). The green biomass yield was higher in region B when compared to region A with values of 82,041 kg ha<sup>-1</sup>. Dry biomass

from region A showed better average when compared to region B, with a value of 30,621 kg ha<sup>-1</sup>. With respect to grain production region B showed better average when compared to the region A with an average of 12,979 kg ha<sup>-1</sup>.

**Table 1** Production of green biomass, dry biomass and grain yield of 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	
Green biomass, kg ha <sup>-1</sup>							
A	70,708	77,670	76,056	69,478	75,968	74,600	74,080 b
B	77,304	76,704	72,520	85,040	84,740	95,940	82,041 a
Average	74,006B	77,187AB	74,288B	77,259AB	80,354AB	85,270A	
Dry biomass, kg ha <sup>-1</sup>							
A	30,587	31,668	27,228	32,346	31,116	30,783	30,621 a
B	29,305	30,169	26,374	29,635	29,059	28,795	28,890 b
Average	29,946AB	30,919A	26,801B	30,991A	30,088A	29,789AB	
Grain yield, kg ha <sup>-1</sup>							
A	11,103	11,809	10,882	11,629	11,869	10,719	11,335 b
B	14,119	12,410	11,393	13,593	11,792	14,566	12,979 a
Average	12,611A	12,110A	11,138A	12,611A	11,831A	12,643A	

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

Averages, followed by capital letters in the row differ by Tukey test at 5%.

**Conclusion** The hybrids had shown good adaptability to the region with average production of green biomass, dry biomass and yield satisfactory.

## References

- Association Of Official Analytical Chemists - A.O.A.C. Official methods of analysis. 14. ed. Washington, D.C., 1984. 1141p.
- Rosa, J.R.P.; Silva, J.H.S.; Restle, J.; Pascoal, L.L.; Brondani, I.L.; Alves Filho, D.C.; Freitas, A.K.de; Avaliação do comportamento agrônômico da planta e valor nutritivo da silagem de diferentes híbridos de milho (*Zea mays L.*). Revista Brasileira de Zootecnia, Viçosa, v. 33, n. 2, p. 302-312, 2004.
- Gralak, E. Capacidade combinatória de híbridos comerciais de milho para caracteres agrônômicos e bromatológicos da silagem. 2011. 53p. Dissertação (Mestrado em Agronomia) – Curso de pós – graduação em Agronomia, Universidade Estadual do Centro-Oeste, Guarapuava, 2011.