

***In situ* digestibility of dry matter of pre-dried silage at different dehydration times**

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Introduction The alternative use of fresh forage plants are the preservation as silage, however, pre-dried silage is a method of preserving feeds rich in moisture and buffering solutions, such as black oats (*Avena strigosa*) in vegetative stage. In process of dehydration, the water extracted from feed favors the growth of lactic bacteria and then can be stored (PEREIRA & REIS, 2001). The process also results in a lack of fermentation, mainly reducing secondary fermentations. The aim of this work was to evaluate *in situ* digestibility of pre-dried black oat silage at different pre-drying times.

Materials and Methods The experiment was carried out in (Agrarian and Environmental Sciences Department of the State University of the Center-West – UNICENTRO), at the Animal Production Center (NUPRAN), in Guarapuava city- PR. The planting was with row spacing of 0.17 m, seeding depth of 0.04 m and seeding rate of 400 seeds per m². The cut was performed 88 days after emergence on pre-flowering. The cutting height was 8 cm from the soil. The times 0, 3, 6, 9, 12 and 15, represent the number of days that the plant was dehydrated in the field after the cut. The material before ensiling was processed, with an average particle size of 2 cm. The chopped material of each portion was stored in experimental PVC (*Poly Vinyl choride*) silos, 10 cm in diameter and 45 cm in length. The black oat forage was manually packed, standardizing from 220 to 250 kg MS m³. After 60 days of ensiled, silos were opened and samples ~300 g were dried in air forced oven at 55 °C until getting constant weight. The dry matter digestibility (DMS) was measured in pre dried forage prior ensiling, using *in-situ* technique nylon bags 12 x 8 cm with pores from 40 to 60 µm, containing 5 g of sample grounded throughout 1 mm sieve. The rumen incubation times were 0, 6, 12, 24, 36 and 48 hours. Two Jersey cows with mean age of 3 years, 460 kg of body weight on average, with rumen fistulas were fed with 50% corn silage and 50% concentrate. The experimental design was a randomized block design. The treatments were harvest periods (0, 3, 6, 9, 12 and 15 days from the cut), and ruminal incubation times (0, 6, 12, 24, 36 and 48 hours), with four replications. The results were submitted to analysis of variance and "Proc Reg" test through the statistical program SAS (1993).

Results and discussion Dehydration times interfere in a degradability of pre-dried silage. For incubation periods up to 24 hours, it is possible to verify a decreasing *in situ* digestibility with increasing dehydration time (Figure 1). This fact can be explained by the low speed of the process of dehydration of the plant, with the main losses of carbohydrates which are easy digested (CAMARGO, 2006).

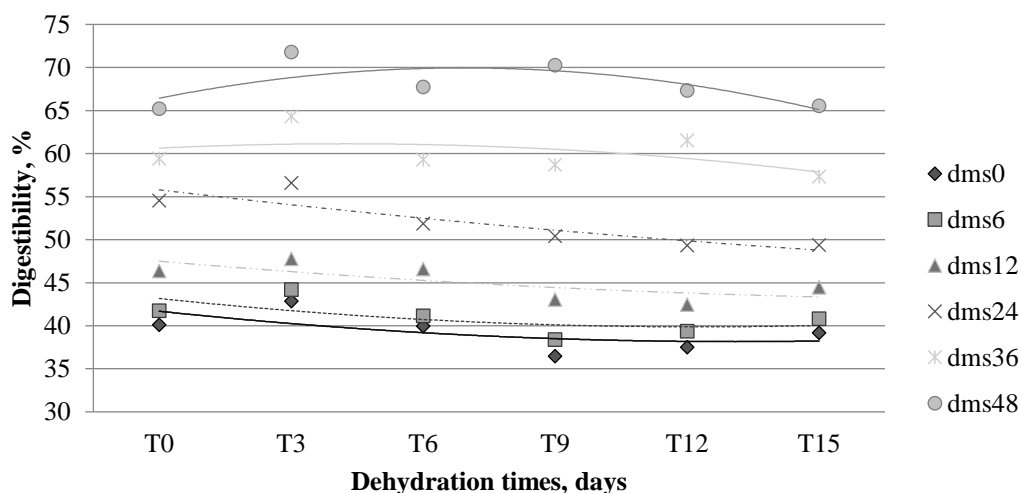


Figure 1 *In situ* digestibility of dry matter of pre-dried black oat silage at different dehydration times

*dms: Digestibility of dry mater, in 0, 6, 12, 24, 36 and 48 hours of incubation; T: Times dehydration, in 0, 3, 6, 9, 12 and 15 days.

In the 36- and 48-hour incubation periods, the highest *in situ* digestibility rates are close to six days of dehydration (Figure 1). This is justified by the fact that the plant decreases acid detergent fiber content between six and nine days of dehydration (CARNEIRO et al., 2017).

In the table 1 are represented the regression equations and data that help in a better interpretation of Figure 1

Table 1 Regression equations, R², CV, mean, standard error of mean and probability

Treatment	b0	b1 X	b2 Y	R ²	**CV	Mean	Standard error of mean	Probability
*T0	39,19002	0,6505	-0,00223	0,9575	4,04	51,2300	0,5540	<0,001
T3	41,84115	0,5408	0,00190	0,9636	4,06	54,5796	1,4139	<0,001
T6	39,58416	0,4545	0,00271	0,9440	5,03	51,0954	0,9920	<0,001
T9	36,26902	0,4491	0,00530	0,9585	5,35	49,5479	0,4927	<0,001
T12	36,68205	0,495	0,00345	0,9475	5,67	49,5833	0,3753	<0,001
T15	39,07269	0,3429	0,00437	0,9643	3,89	49,4458	0,1878	<0,001

*T: Times dehydration, in 0, 3, 6, 9, 12 and 15 days. ** Coefficient of variation.

Conclusion The *in situ* digestibility is higher for the treatment with three days of pre-drying, and showed quadratic behavior.