

Effects of enzyme inoculum mixture on preservation, nutritive value and palatability of grass and clover silages

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Second-crop grass of Becva variety, clover of Kvarta variety, and grass-clover mix (1:1), were ensiled in six special silage containers (7 m³) with and without enzyme inoculum mixture (Bactozym). The silage was stored under the same conditions for each variant tested.

The enzyme component was prepared from cellulase-hemicellulase mixture (25.000 nkat/ml) and glucosidase (4.000 nkat/ml). The inoculum used was a mixture of *Enterococcus faecium* M-74, *Lactobacillus plantarum*, *Lactobacillus casei* and *Pediococcus* spp. (CFU : 15 x 10⁹/g). The enzyme-inoculum mixture (mixture of 1 litre of enzyme component with 100 g of inoculum) was dosed for each 1 ton of forage.

The silage effluent, which flowed continuously for 120 days, was collected and measured daily and was sampled twice during the period for analyses. In silages stored with additive, the outflow of silage effluent was reduced by

34.8 % in clover silage, by 18.3 % in grass-clover mix silage and by 16.4 % in grass silage, compared to silages without additive.

To estimate the nutritive value of silages and their fermentation parameters, routine analytical techniques were employed. The differences between nutritive value and final quality of silages, with and without the enzyme-inoculum mixture, are presented in the following table. Effects of application of the additive to silages are clear.

All silages were tested in a feeding trial with 12 heifers. Voluntary daily intake of grass silages with additive was 8.5 kg per heifer and without additive 3.6 kg per heifer. *Ad libitum* consumption of grass-clover mix silage was 8.4 kg and 7.0 kg, respectively, and that of clover was 7.7 kg and 3.8 kg, respectively.

In conclusion, the use of the enzyme-inoculum mixture Bactozym improves nutritive value and palatability of silages.

	Forage Additive	Clover		Mix		Grass	
		No	With	No	With	No	With
Dry matter	(g/kg fresh matter)	200	191	197	207	200	210
Crude protein	(g)	43	46	33	35	27	31
PDI	(g)	16	17	15	17	16	18
NEL	(MJ)	0.93	0.94	0.97	1.05	1.18	1.25
NEV	(MJ)	0.87	0.88	0.92	0.99	1.16	1.22
pH		4.6	4.3	4.2	4.0	4.0	3.9
Lactic acid	(mmol/l)	1.38	1.44	1.29	1.72	1.85	1.95
Acetic acid	(mmol/l)	1.25	1.07	1.03	1.21	0.79	0.59