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Poster 2.23

Mantel film on round bales

Net replacement film in round bale ensiling of ley crop

CONCLUSION

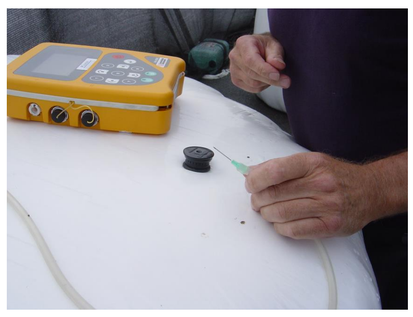
Replacing net with film resulted in better shaped bales, better seal integrity, higher CO_2 and less mould. But reducing the number of stretch film to 4 layers is not recommended.

BACKGROUND

- Netting shape the bale but does not contribute to seal integrity
- Net and stretch film has to be removed and stored separately for recycling
- Mantel film could possibly reduce the number of stretch film layers needed

HYPOTHESIS

Mantel film will improve seal integrity and anaerobiosis of bales and ameliorate the silage quality.



MATERIALS & METHOD

36 bales made by McHale Fusion 3 Plus

- Net or Mantel film (17µm,1390mm, 3 layers)
- 4, 6, 8 layers of stretch film (25µm, 750mm)
- Grass-Clover ley, 45 % DM
- 6 replicates per treatment equally distributed among 6 blocks at the field

RESULTS

Mantelfilm bales gave:

- Better seal integrity
- Higher CO_2 content
- Slimmer bales
- Less mould
- Lower NH_3-N

More layers gave:

- Better seal integrity
- Higher CO_2 content
- Thicker bales
- Less mould
- More WSC

	Comparing Mantelfilm vs Net		Comparing number of stretch film layers			Mantel x layer interaction
	Mantelfilm	**Net**	**4 layers**	**6 layers**	**8 layers**	
Volume, m^3	1.67^a	1.71^b	1.69	1.69	1.68	n.s.
Perimeter, m	4.21^a	4.28^b	4.22^a	4.24^{ab}	4.28^b	n.s.
Density, kg DM m^{-3}	172.7	167.6	170	170	171	n.s.
DM loss, %	0.90	0.90	0.96	0.95	0.80	n.s.
CO_2, %	63.7^a	57.2^b	54.0^a	61.3^b	66.1^b	p<0.05
Seal integrity, s	938^a	533^b	165^a	879^b	1162^b	p<0.05
Yeast, cm^2	0.00	0.06	0.09	0.00	0.00	n.s.
Mould, cm^2	0.03^a	0.78^b	1.17^a	0.06^b	0.00^b	p<0.05
pH	5.3	5.3	5.3	5.3	5.3	p<0.05
WSC, g kg DM^{-1}	7.2	6.4	6.0^a	6.9^{ab}	7.5^b	p<0.05
Ammonia-N, % of total	4.5^a	5.1^b	5.1	4.6	4.7	n.s.
Lactic acid, g kg DM^{-1}	1.4	1.5	1.6	1.3	1.4	p<0.05
Acetic acid, g kg DM^{-1}	0.4	0.4	0.4	0.3	0.4	p<0.05
Ethanol, g kg DM^{-1}	1.5	1.6	1.8^a	1.6^b	1.3^c	n.s.

(Different superscripts in rows indicate significant diff at p<0.05)

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