

Harvest and storage of moist cereal straw

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What did we do and why?

- In Nordic countries, straw is often difficult to harvest dry enough (15 – 20 %, w.b) due to wet autumn weather
- The aim of this study was to identify how baled moist straw could be conserved by using different amounts of plastic wrapping and a preservative
- The bales were made in autumn 2013 (table 1) and opened for analysis after 6 or 12 months

What did we find out?

- The moist straw was not preserved well without plastic wrapping. The major reason for failure was moulding
- Even a small amount of plastic wrapping (3 layers) maintained straw quality reasonably well over winter (6 months)
- Storing 12 months was more challenging
- An added biological preservative helped a little to maintain straw quality
- The costs of wrapping are 5.5 – 13.5 eur/tonne DM higher compared to traditional storage

Which are the next steps?

- In autumn 2015 the experiment will be repeated with fewer treatments but with 4 replicate bales
- Propionic acid will be used as a preservative



Figure 1. The barley straw was baled with an integrated round baler wrapper with full bale density setting.

Table 1. Straw moisture, amount of plastic layers, usage of biological preservative and results of organoleptic analysis after storage (1 = the poor straw quality, 2 = the quality nearly ok, 3 = good quality). Bales without plastics were stored in the storage hall and the other outside.

Bale number	Average moisture (w.b)	Plastic layers	Preservative	6 months' storage	12 months' storage
1	22 - 32 %	0		1	1
2		3		2	2
3		6		3	2
4		0	x	1	1
5		3	x	3	2
6		6	x	3	2
7	23 - 38 %	0		1	1
8		3		3	2
9		6		3	2
10		0	x	1	1
11		3	x	3	2
12		6	x	3	2

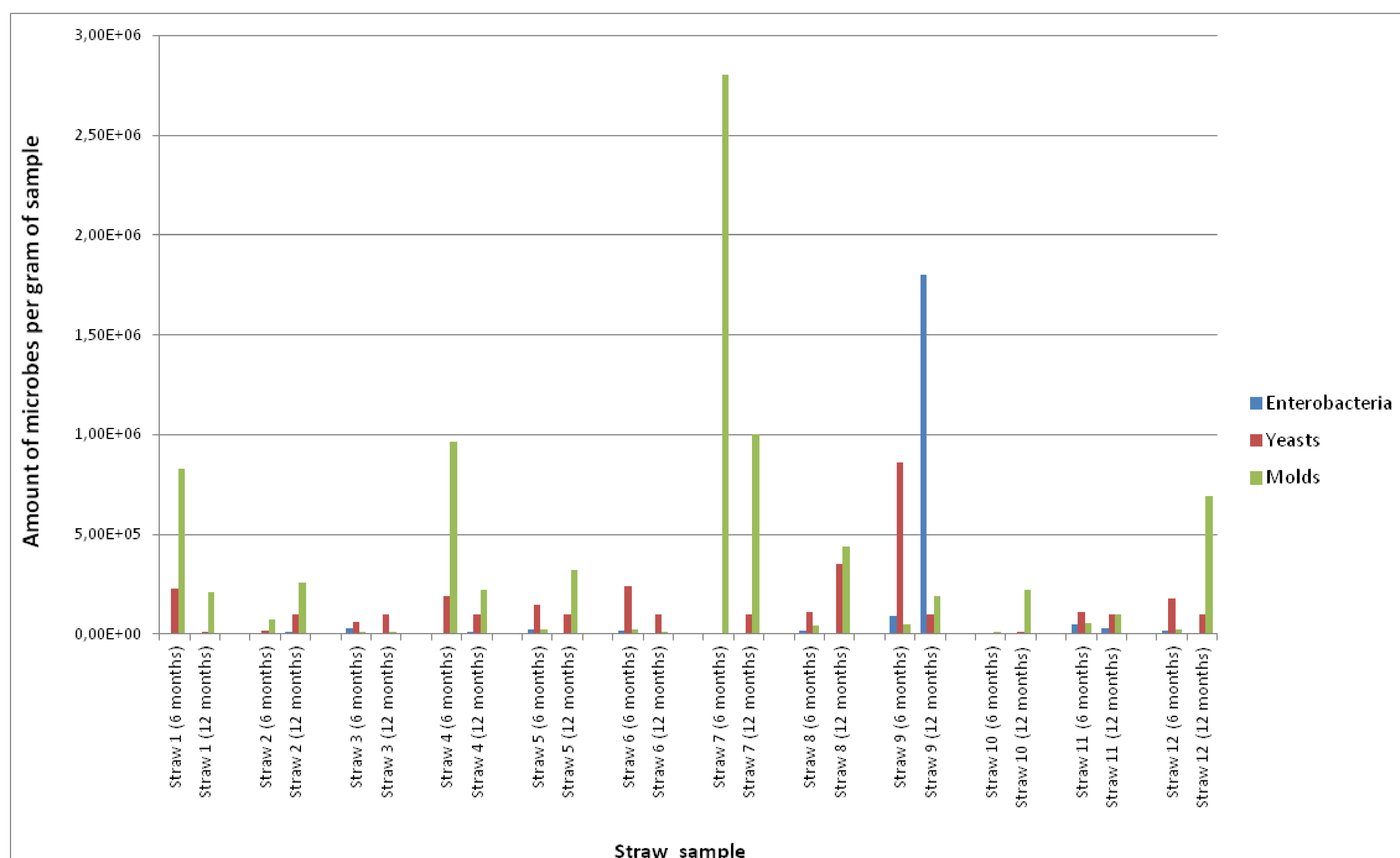


Figure 2. Determination of the amount of enterobacteria, yeast and mould (per gram of straw sample) in the experimental bales. Information on the bales is presented in Table 1.

