

# Airborne fungi measurements in bedding hygiene quality assessment



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# Introduction



- Airborne fungi from bedding
- Respiratory diseases in stabled horses and stable workers



- Hygiene quality of different bedding materials?

# The purpose of the study

- To determine the hygiene quality of bedding materials with the commercial Mycometer-test

Peat moss

Sawdust

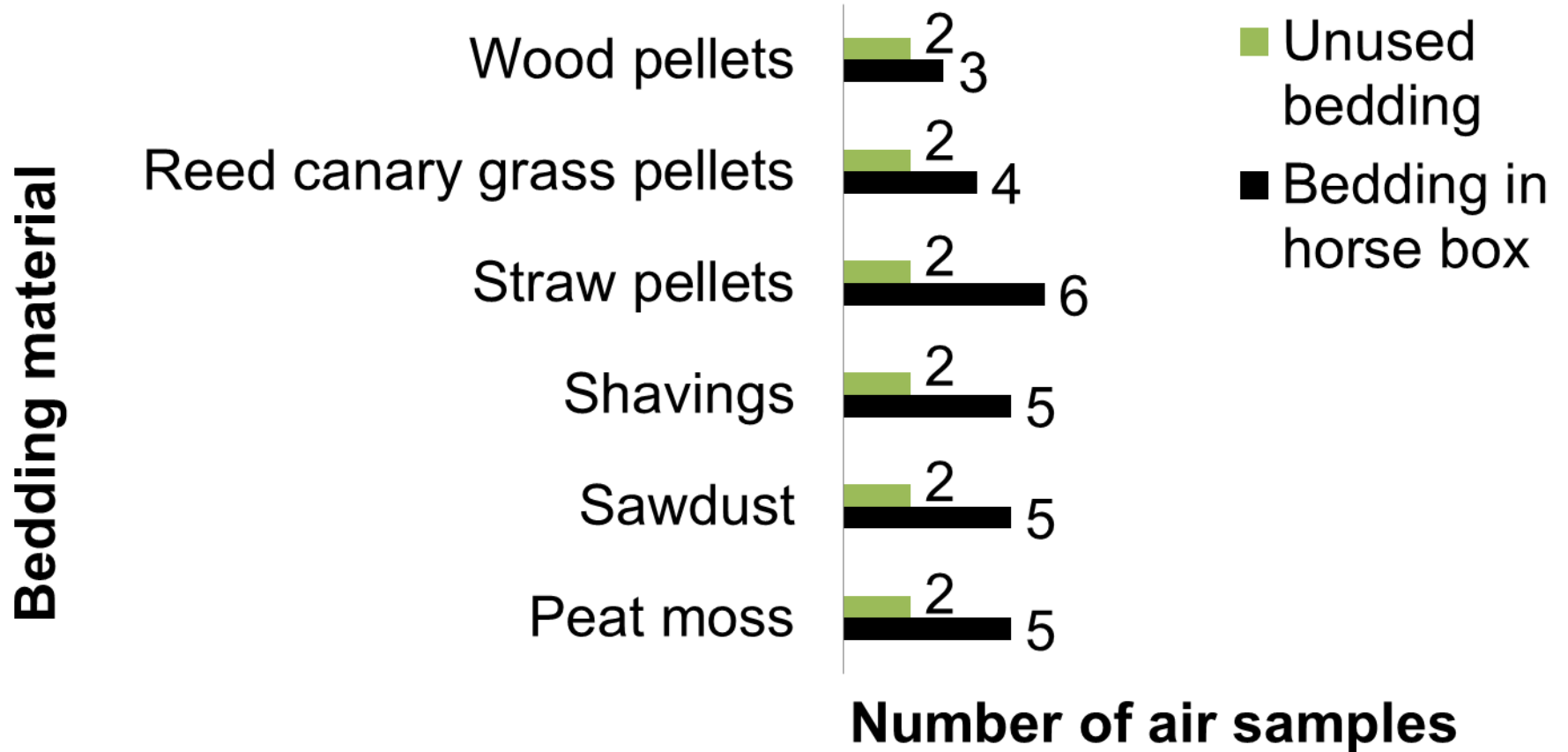
Shavings

Straw pellets

Reed canary  
grass pellets

Wood pellets

# Air samples



# Collection and analysis of air samples

- Measuring height 20 cm
- Sample volume 300-500 l
- Sampling time 2 hours
- Total fungal biomass with Mycometer®-test ([www.mycometer.com](http://www.mycometer.com))
  - Activity of  $^2$  -N - aminidase acetylhexos (NAHA) (Rylander, R., Reeslev, M., Hulander, T. Airborne enzyme measurements to detect indoor mould exposure. J. Environ. Monit., 2010, 12, 2161-2164)



**Table 1. Mean and standard deviation of airborne fungi concentration 20 cm above the unused bedding layer (n=2) and ground (control, n=5).**

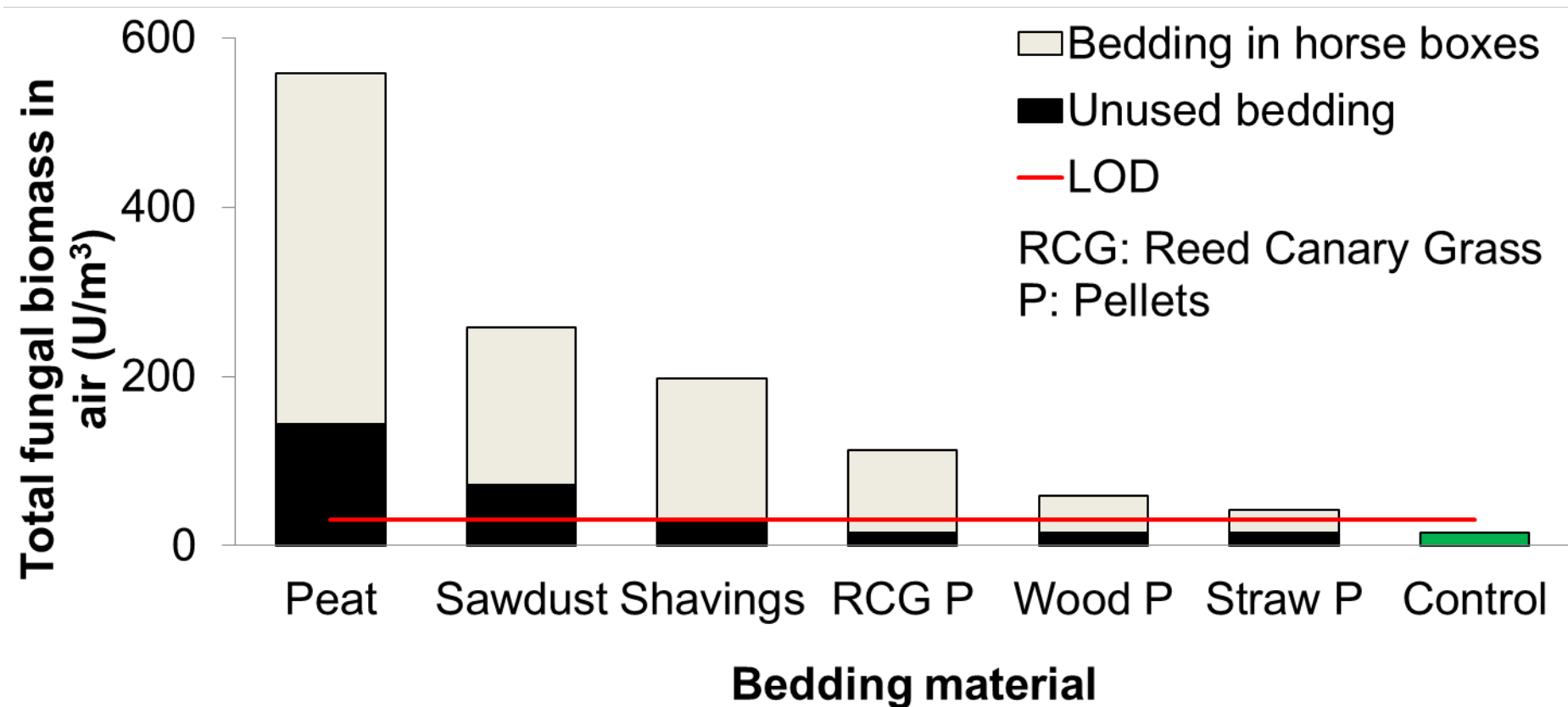
<b>Material in bedding layer</b>	<b>Mean (U/m<sup>3</sup>)</b>	<b>SD (U/m<sup>3</sup>)</b>
<b>Peat moss</b>	<b>143</b>	<b>14</b>
<b>Sawdust</b>	<b>72</b>	<b>4</b>
Shavings	28	18
Wood pellets	<LOD*	0
Reed canary grass pellets	<LOD	0
Straw pellets	<LOD	0
Control	24	13

\*LOD: 30.31 U/m<sup>3</sup>

**Table 2. Mean and standard deviation of airborne fungi concentration 20 cm above the bedding layer in horse boxes.**

<b>Material in bedding layer</b>	<b>Mean (U/m<sup>3</sup>)</b>	<b>SD (U/m<sup>3</sup>)</b>
<b>Peat moss, n=5</b>	<b>358</b>	<b>226</b>
Sawdust, n=5	150	80
Shavings, n=5	137	56
Wood pellets, n=3	149	188
Reed canary grass pellets, n=4	112	37
<b>Straw pellets, n=6</b>	<b>50</b>	<b>46</b>
Control, n=10	19	12

**Figure. The median concentration of airborne fungi 20 cm above the bedding layer and in control samples.**





# Conclusions

- Mycometer-test
- Bedding choice
- Bedding management

# THANK YOU FOR YOUR ATTENTION!



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