

## Cost efficiency of wood pellets used as a horse bedding material

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Keywords: bedding material, wood pellets, costs

Straw and wood shavings count to the most commonly used bedding materials for horses in Germany and their properties have been described in numerous studies while wood pellets are little-known as a bedding material yet and have therefore been barely studied. But for farm managers the choice of the bedding material is economically relevant and so the goal of this study was to compare the cost efficiency of wood pellets used in single boxes to the cost efficiency of wheat straw and wood shavings. Parameters concerning the horse's behaviour and the climate in the stables were also considered.

On a farm in the South of Germany with approximately 150 horses the use of wood pellets, long straw and wood shavings was analysed in 12 boxes. The same horses were kept in these boxes during the whole research. The data for the parameters 'labour time input', 'amount of bedding material used' and 'weight of the dung' were collected during two periods of 6 days in the summer of 2016. At the same time the laying and foraging time, as well as the dust and the ammonia concentration in the stables were measured.

In this study the weight of the dung did not differ between the bedding materials (GLM:  $N = 78$ ,  $t = 0.20$ ,  $p > 0.05$ ). At the same time the lowest amount of bedding material was used for the wood pellet boxes with 26.03 decitonnes per horse and year. The labour time input was lowest for the wood pellets as well with 69.62 working hours per horse and year. Therefore, the total costs per horse and year, calculated with the minimum wages valid for the German agriculture in 2017, were lower for the wood pellets (1289 €) than for the straw (1684 €) and the shavings (1953 €).

From an economic point of view the wood pellets should be the preferred bedding material. Nevertheless, the horses spend the shortest time laying and foraging when they were bedded on wood pellets and the dust and ammonia concentrations in the air were the highest. However, limit values for the dust and the ammonia were not reached by any bedding material.