The use of *Blister* for limiting the consumption of bedding material in the cubicle.*

Preliminary results

The objective of this research was to evaluate the use of *Blister* to reduce the consumption of sand used as bedding material for high production dairy cows subjected to heat stress. The test was carried out during the summer of 2007 (June-July) at the experimental farm "V.Tadini" in Gariga Podenzano (PC).

The farm has an experimental free housing barn for dairy cows, with cubicles as rest area, and with an outer earth corral.

The structure is prefabricated and closed on three sides. The shorter sides are partly delimited by masonry walls and partly closed by metal doors; The longer side, which delimits the lane for the supply of the fodder, is half closed by a masonry wall, while the overlying half is equipped with a window. The other main side is fully open.

The barn has a north-south orientation with the corral on the west side. The area occupied by the animals is divided into boxes so that each group is independent with respect to access to the corral and in relation to milking parlour. The barn is also equipped with a cooling system with forced ventilation associated with nebulization.

The cows examined were 30, divided into two groups (one of 14 and one of 16 animals) homogeneous by production, distance of birth and number of births. The group of 14 animals (BL) had available 6 cubicles with straw and 8 cubicles with sand contained in the *Blister*s. The group of 16 animals (SA) had 8 cubicles with straw bedding and 8 cubicles with sand bedding.

The cubicles in the stable and used in the test, are common prefabricated concrete bases with edges and front part made of concrete and a depth of 25 cm.

For the test were used 8 *Blister* of recycled rubber 20 cm x 20 cm, with a thickness of 11 cm.

As soon as the cubicles were emptied, the *Blister*s were placed on 3 wooden beams of 8 cm x 8 cm square section, fixed to the lower part of the cubicle and with a thickness function, so that the free space remaining between the surface of the *Blister* and the top of the rear curb of the cubicle, was about 7 cm (Figure 1).

Subsequently, it was decided to fill the cubicles with fine river sand up to the edge of the curb (Figure 2).

During the test period, weekly sand additions were made both in cubicles with *Blister* and in cubicles without *Blister*, so as to refill the cubicle to the top of the curb and ensure excellent comfort to the animals. The amount of sand each time carried to the cubicles were monitored to evaluate the material savings due to the presence of the *Blister*s.

According to the calculations made, the average amount of sand used in a cubicle with *Blister* has been about 4 kg per day compared to 20 kg per day required for a cubicle without *Blister*. Therefore, *Blister*-equipped cubicles have shown a much lower emptying rate compared to traditional ones.

During the studies carried out in recent years it has been observed that, especially on hotter days, fresh sand attracts animals that often start true play activities such as: digging in the cubicles with the forelegs and then throwing the sand back up onto the rump - perhaps to cool off (Figure 5). As a result of this activity large amounts of sand are dug out from the cubicles, so, it is necessary to replenish them very often (Figure 6).

Such huge leakages not only are responsible for a higher material consumption and a higher labour required, but also for the damage of pumps and other equipment.

In cubicles equipped with the *Blister*, being the sand layer limited to a few centimeters, it has been observed that the digging activities are almost absent, without apparently betraying of the high cooling effect of the sand.

To further realize the comfort of the cubicles with and without sand, continuous images were recorded with a camera, in order to evaluate the degree of use of the cubicles by the cows. These data must still be processed.

Key to the photographs contained in the document in Italian

Figure 1) Fixing of the Blister on wooden joists;

Figure 2) Filling of the *Blister*s with river sand;

Figure 3) Cubicles without *Blister* after 6 days from filling;

Figure 4) Cubicles with *Blister* after 6 days from filling;

Figure 5) Animals playing with the sand of a cubicle without *Blister*;

Figure 6) As a result of the animals' playing activities of the animals, the cubicles tend to empty fast in the front part; and therefore to be uncomfortable.

* *this document is an unofficial translation into English from the source:*
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