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Res. Agr. Eng.

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Los

Possible use of

vacuum controlled pulsators for sheep milking machines

Res. Agr. Eng., 50 (2004): 23-27

Comparison measurements and evaluation of the suitability of three pulsators for sheep milking machines were carried out, i.e. a prototype made by the manufacturer of the milking parlour of the pulsator ratio 50% (50:50) and two hydraulic pulsators of the Danish manufacturer S.A. Christensen (SAC), models Unipuls-2 of the pulsator ratios 50% (50:50) and 60% (60:40). The specified pulsation rate was 2.5/s(150/min). It was found that the pulsator prototype made by the milking parlour manufacturer slowly passed air, whereby the vacuum in pulsation chambers did not attain the maximum value. Fig. 2 illustrates the operation of this pulsator. Both SAC pulsators had better parameters and their pulsograms are plotted in Figs. 3 and 4. Also the measurements of a liner deformation in dependence on the vacuum in the teatcup pulsation chamber were made based on which the moment of a real liner opening, i.e. at the vacuum of 35 kPa was determined. The results obtained by the experiments carried out can be summed up as follows: As the change in pulsation rate does not affect the time of transition phases " a " and " c " , the intervals " b " and " d " are shorter if the pulsation rate is increased. Interval " b " , i.e. a full liner opening, shortens with the rising rate and extends with the increased value of the pulsator ratio. For this reason higher pulsator ratios should be used at very high pulsation rates. The teatcup operation depends on the physical-mechanical properties of the liner used. On the milking unit measured considerable differences in time take place between the interval " b " and the liner full opening due to a relatively high resistance power of the liner to deformation. The pulsator prototype designed by the milking parlour producer revealed as fully unsuitable based on its pulsogram. As far as the time of the liner opening is concerned, its parameters were worse than on both SAC pulsators, however, we cannot indicate it as unsuitable.

Keywords:

milking machine; sheep milking; pulsator; pulsation rate; pulsator ratio

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