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RATIONAL SELECTION AND USAGE OF ROTARY TYPE MILKING EQUIPMENT

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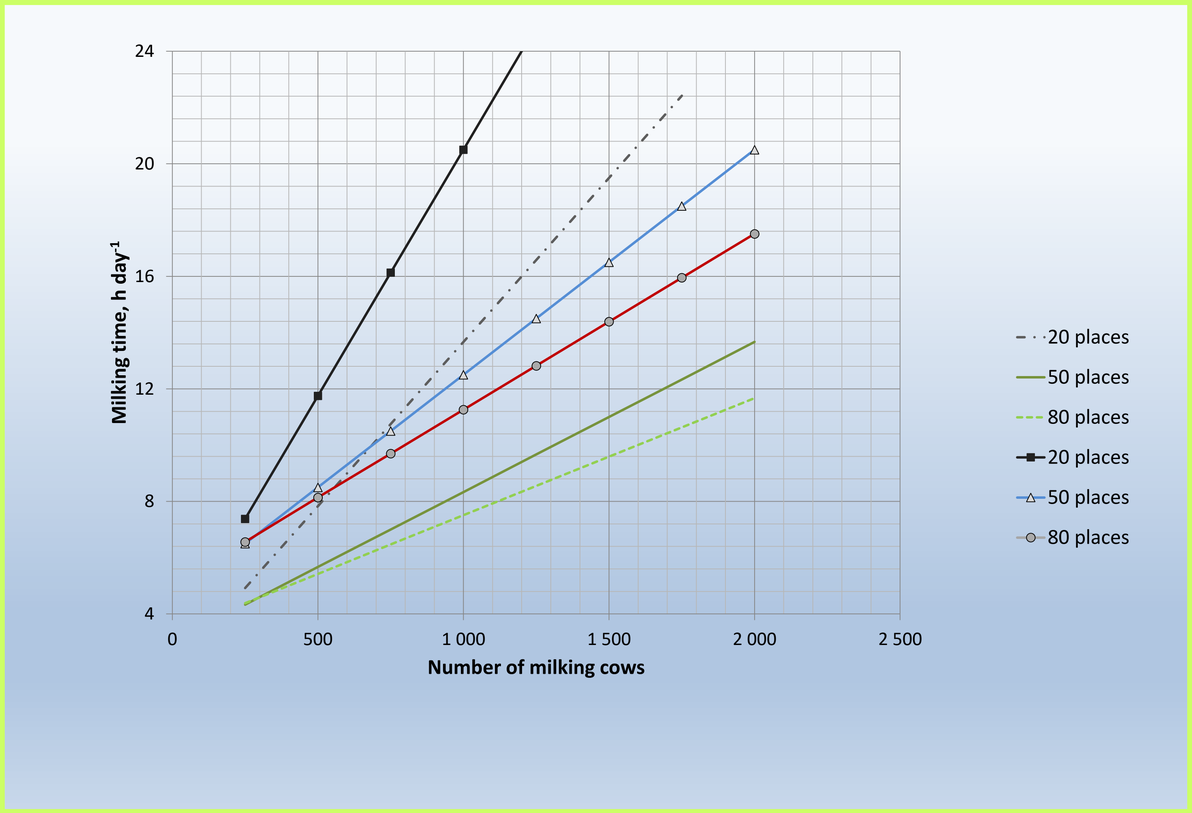
The aim of the research: The aim of this study is to determine the economic efficiency of dairy cows using rotary milking equipment with reduced labor productivity, so that the total milking time is 15 - 20 hours per day.

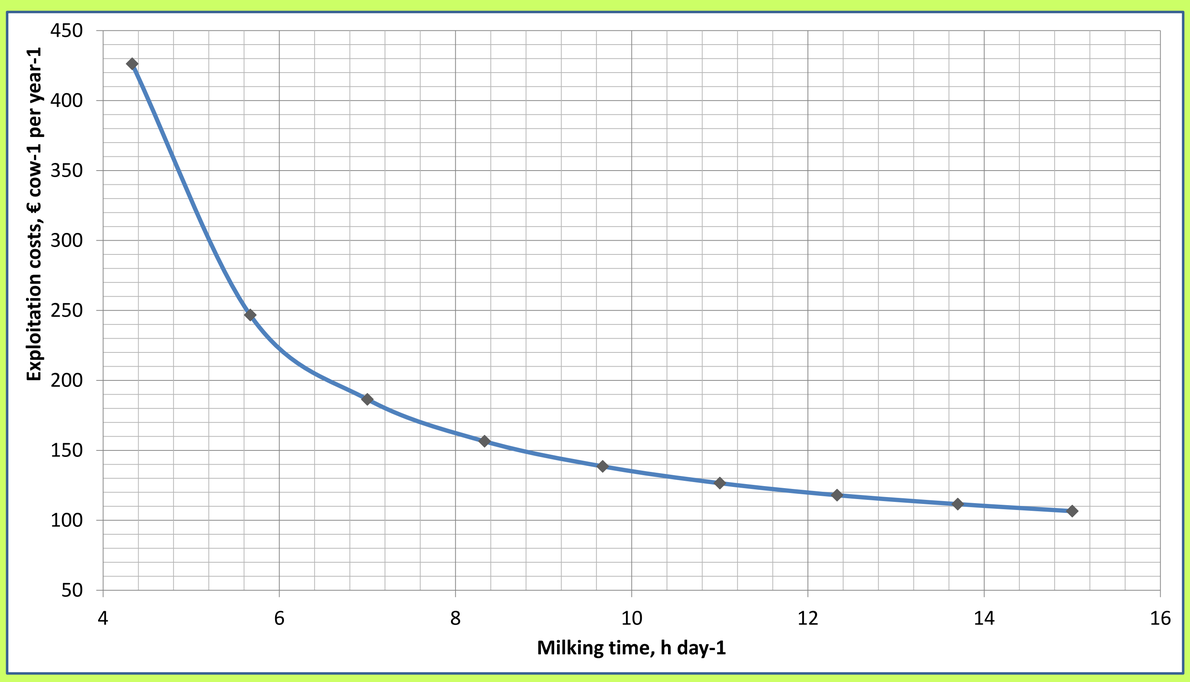
The object of the research: For the research three farms in Latvia were selected, where rotary type milking equipment with 20, 50 and 80 milking places, produced by the GEA company, is used. At all of these farms the milk yield was approximately the same, i.e. ranged from 9,000 to 9,930 kg cow^{-1} year^{-1}, and during milking cow mechanical movers were used, but the number of people participating in milking and the main exploitation indicators were different.

Indicators	Dairy farms		
	A	B	C
Number of milk cows	300	600	2,000
Average milk yield, kg cow^{-1} year^{-1}	9,930	9,000	9,500
Number of milking places	20	50	80
Time of one platform revolution, min revolution^{-1}	7	8	10
Preparation and finishing time before and after milking, h day^{-1}	1.0	1.5	1.67
Number of milkers in a shift	2	3	4
Number of movers in a shift	1	1	1
Wages for milkers, € month^{-1}	700	700	700
Wages for movers, € month^{-1}	500	500	500
Rotary equipment cost, €	220,000	400,000	700,000
Rotary equipment repair costs, € month^{-1}	1,500	2,000	2,500
Electric drive power, kW	8	13.5	25
Consumption of teat disinfectants, l day^{-1} cow^{-1}	0.02	0.02	0.02
Consumption of milking equipment washing detergents, l day^{-1}	3	6	10

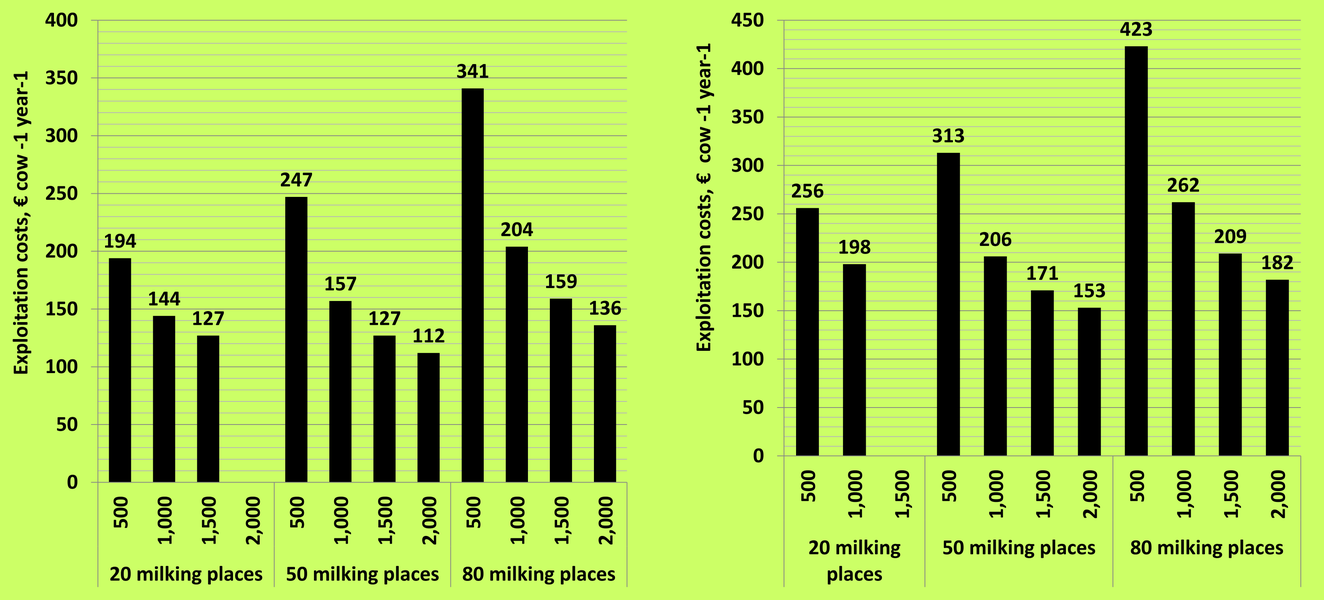
Description of the dairy farms includet in the research



Milking time, h day^{-1}, depending on the number of cows, number of milking places on the rotary platform and number of milking per day (unmarked lines show milking two times per day, marked lines - milking three times per day).



Variations of milking specific exploitation costs depending on the total milking time, if rotary equipment with 50 milking places is operated and cows are milked twice a day.



Exploitation costs milking twice and three times a day, in € cow-1 year-1, depending on the size of the herd (500; 1,000; 1,500 or 2,000 cows) and the number of milking places.

Conclusions. If the cows are milked twice per day, then at the above mentioned preconditions the rotary equipment with 20 milking places can serve a herd up to 1,200 cows, but with 50 milking places – a herd with approximately 2,150 cows. If, in turn, the cows are milked three times, then the rotary type milking equipment with 20 milking places is suitable for milking up to 700 cows, with 50 milking places – for a herd with up to 1,400 cows, but with 80 milking places – for a herd with up to 1,750 cows. The specific costs of rotary type milking equipment in € per cow per year, are essentially dependent on the size of the cow herd. When bigger number of the cows to be milked, it is possible to expect the smaller costs correspondingly.