

INFLUENCE OF MASTITIS ON REPRODUCTIVE INDICATORS AND MILK QUALITY IN DAIRY COWS

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The aim of the work was to evaluate the incidence and etiology of mastitis and its impact on reproductive parameters and milk quality of dairy cows in two dairy herds of Slovak spotted cattle in western Slovakia.

Material and methodology:

- Dairy cattle breeding (mainly Slovak spotted cattle)
- Tested 112 dairy cows that were 10 days post-calving with a history of intramammary infection in the previous lactation.
- Dairy cows that had a positive CMT test and an elevated SCC value in the last three months before drying therapy
- Bacteriological examination with identification of *Staphylococcus* spp., *Streptococcus* spp. and *Enterobacteriaceae* spp. using biochemical STAPHY-test, STREPTO-test or ENTERO-test and identified using software
- Comparison of insemination interval, insemination index, intercalation period, service period and lactation length obtained from the databases of the given breeding.
- Comparison of milk composition

Table 3, Comparison of milk composition

Parameter	Healthy	SM	CM
	x ±SD	x ±SD	x ±SD
Daily milk yield (kg)	34.8±3.8 ^a	32.9±3.5 ^a	25.4±2.7 ^b
DM (g.100 g ⁻¹)	12.36±0.74	12.67±0.82	12.9±0.75
SNF (g.100 g ⁻¹)	8.86 ± 0.32	8.70±0.65	8.65±0.54
Fat (g.100 g ⁻¹)	3.7 ± 0.57	3.84 ± 0.54	4.15±0.42
Protein (g.100 g ⁻¹)	3.2±0.28 ^b	3.4 ± 0.28 ^{a,b}	3.7±0.25 ^a
Lactose (g.100 g ⁻¹)	4.91 ± 0.29	4.82 ± 0.32	4.75±0.30

Note: SM – subclinical mastitis, CM – clinical mastitis, DM – dry matter (total solids), SNF – non-fat dry matter (solids non-fat).

Table 4, Evaluation of reproductive parameters in dairy cows with subclinical and clinical mastitis

Reproduction parameter	Reproductive parameter value		Dairy cows with unsatisfactory reproductive parameter values		
	V [pcs/%]	N [pcs/%]	SM [pcs/%]	CM [pcs/%]	Negative [pcs/%]
Insemination interval (55-80 days)	86 (77%)	26 (23%)	2 (8%)	4 (15%)	20 (77%)
Insemination index (1,2-2)	66 (59%)	46 (41%)	7 (15%)	6 (13%)	33 (72%)
Servis period (60 -110 days)	99 (88%)	13 (12%)	4 (31%)	3 (23%)	6 (46%)
Intercalation period (365-400 days)	46 (41%)	12 (11%)	1 (8%)	1 (8%)	10 (84%)
Lactation length (240-305 days)	86 (77%)	26 (23%)	4 (15%)	7 (27%)	15 (58%)

Note: V – satisfactory, N – unsatisfactory, SM – subclinical mastitis, CM – clinical mastitis

Conclusion:

In mixed milk samples, *Staphylococcus aureus* and coagulase-negative staphylococci (*Staphylococcus xylosum*, *Staphylococcus warneri*, *Staphylococcus chromogenes*), *Aerococcus viridans* and *Escherichia coli* were detected in both forms of mastitis. Compared to optimal reproductive indicators, the results showed unsatisfactory reproductive values, especially in dairy cows with a clinical form. Likewise, in the group of dairy cows with clinical mastitis, milk quality parameters such as lower daily milk yield and increased protein content were altered.

Results:

Table 1, Overview of CMT evaluation and bacterial findings

n	CMT		Bakteriological findings		
	Negative	Positive	n	Negative	Positive
448	381 (85 %)	67 (15 %)	112	62 (55 %)	50 (45 %)

Note: n - number of milk samples

Table 2, Overview of isolated pathogens from milk samples

Isolated pathogens	n
<i>Staphylococcus aureus</i>	16 (32 %)
<i>Escherichia coli</i>	2 (4%)
<i>Aerococcus viridans</i>	12 (24 %)
Coagulase-negative staphylococci (<i>Staph. xylosum</i> , <i>Staph. chromogenes</i> , <i>Staph. warneri</i>)	20 (40%)
Summary:	50

