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Changes of udder morphology characteristics during milking period in dairy ewes

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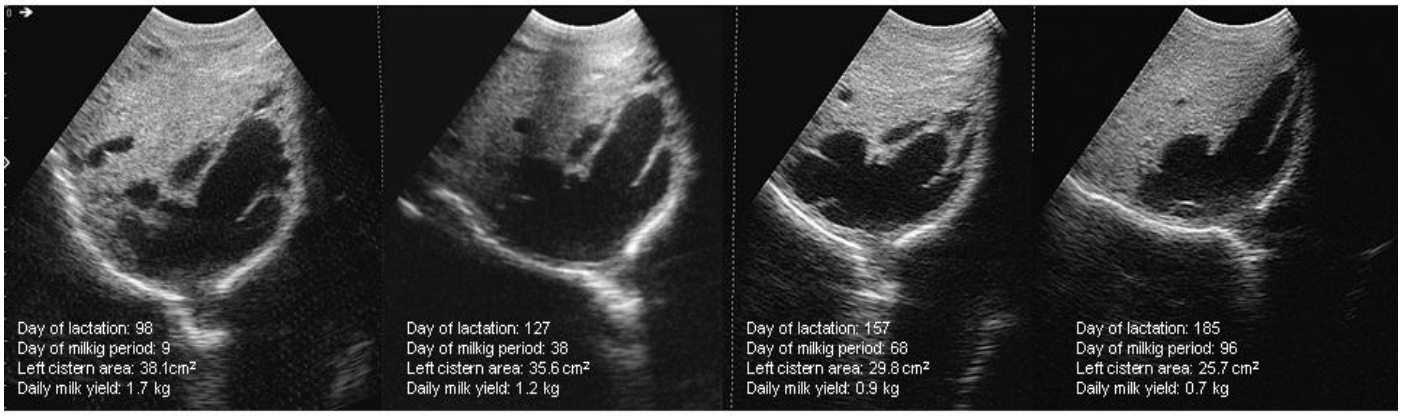


INTRODUCTION

Good and homogenous udder morphology of dairy ewes is desirable for good milkability, udder health and animal welfare, especially if machine milking is in use.

For that reason udder characteristics need to be included in breeding programmes for dairy sheep, beside the milk production and quality traits.

The main aim of this study was to determine the optimal time during lactation for sheep udder measurements and assessments.

MATERIAL AND METHODS

Investigation was carried out on 94 crossbred dairy ewes with 50-87.5 % of Lacaune genes, which were examined four times during the milking period in month intervals (from May to August 2010).

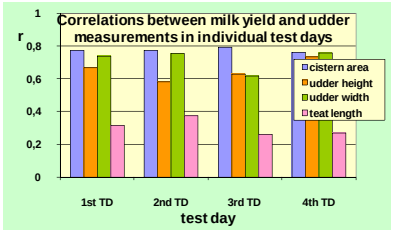
Udder height and width and teat length were measured, teat position, udder attachement and udder cleft were assessed by linear scoring using 5-pont scale (1 – desirable; 5 – bad) and udder cistern cross-section areas were determined on the basis of ultrasound scanning.

RESULTS

Table 1: LSMs for milk yield and udder morphology chyracteristics measured at different times during milking period (test days)

Traits	units	Test days			
		TD 1	TD 2	TD 3	TD 4
Daily milk yield	l	**1.28^{a}**	**1.04^{b}**	**0.92^{c}**	**0.83^{d}**
Cistern area	cm^2	**64.1^{a}**	**62.6^{a}**	**55.7^{b}**	**51.7^{c}**
Udder height	mm	**149.8^{a}**	**146.4^{a}**	**137.7^{b}**	**134.2^{b}**
Udder width	mm	**145.4^{a}**	**143.3^{a}**	**134.3^{b}**	**130.5^{b}**
Teat length	mm	**27.9^{ab}**	**28.6^{a}**	**27.0^{b}**	**25.9^{c}**
Teat position		**2.86^{a}**	**3.00^{b}**	**3.13^{c}**	**3.15^{c}**
Udder attach.		**2.36^{a}**	**2.78^{bc}**	**2.82^{b}**	**2.69^{c}**
Udder cleft		**2.83^{a}**	**3.02^{b}**	**2.89^{ab}**	**2.95^{ab}**

Figures in rows marked by different letters differ significantly (P<0.05)



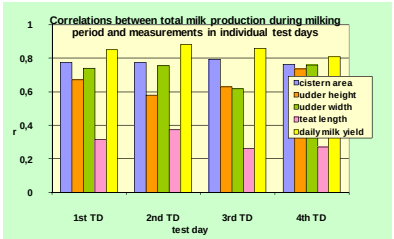


Table 2: Correlations between measurents in different stages of milking period (test days) for daily milk yield (below diagonal) and cistern areas (above diagonal)

	TD 1	TD 2	TD 3	TD 4
TD 1		**0.79**	**0.73**	**0.65**
TD 2	**0.72**		**0.76**	**0.66**
TD 3	**0.64**	**0.64**		**0.77**
TD 4	**0.52**	**0.63**	**0.69**	

CONCLUSIONS

Udder size and shape characteristics changed during lactation together with daily milk yield

Cistern areas, udder height and udder width are well correlated to daily and to total milk production

Ultrasound measuremets of udder cistern cross-section areas showed slightly better repeatability during milking period than daily milk yield records

Relationship between the measurements on udders and the milk production was relatively stabile durig the whole examined milking period, nevertheless it is recommendable to perform udder measurements and linear assessments in the first three months of milking period, bacause of incresing ratio of dry ewes at the end of lactation

Supported by project NAZV QH91271