

Preliminary results for the length of productive life of Holstein cows in Croatia



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AIM

The length of productive life (LPL) is a trait of considerable importance in dairy husbandry which could be seen as a composite of production, health, and reproduction within specific environmental and farming conditions.

Herd structure differs among regions, with small and medium sized herds in the central and large herds in the eastern part of Croatia, having different environmental and management (feeding, reproduction, housing) conditions.

The objective of this study was to investigate the effect of herd size on the LPL of the registered Holstein cows in Croatia.

MATERIAL AND METHODS

Material: 200634 records for 87620 cows recorded from 2002 to 2017

Methods: Proc Lifetest in SAS statistical package

Data stratification:

Herd size:

1 = 1 - 5

2 = 6 - 10

3 = 11 - 30

4 = 31 - 100

5 = 101 - 500

6 = >500 cows

A censoring variable was used to identify animals that had been culled (censor = 1) from the animals that were in production at the moment of data export (censor = 0) from the Central Database of the Croatian Agricultural Agency.



RESULTS

Table 1. Least square means values of age (months), milk (kg), fat (kg, %) and protein (kg, %)

Herd size	N cows	Age	Milk	Fat	Protein
1	16554	50.88	5632.37	226.76	183.80
2	14873	48.80	6055.42	243.44	198.77
3	16620	47.65	6457.53	261.09	216.02
4	16134	45.27	7056.95	282.96	238.00
5	32864	44.68	7663.40	304.53	259.11
6	14412	42.35	8290.18	344.00	278.61

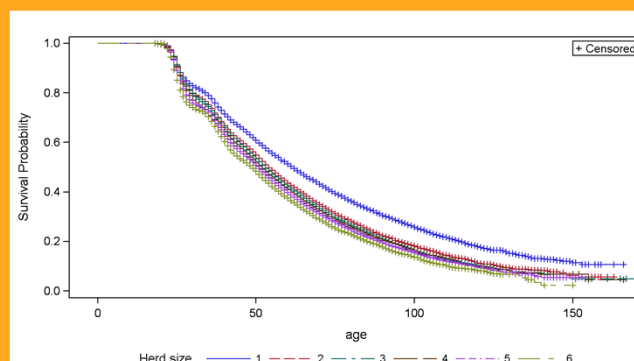


Figure 1. Kaplan-Meier survival analysis plot for lifetime production stratified according to herd size

CONCLUSIONS

The increase in herd size is associated with the increase in milk, fat and protein yield but decreased survival (Table 1). The average length of productive life was lowest in large herds with more than 500 cows (group 6: 42.35 months) and highest in small herds up to 5 cows (group 1: 50.88 months). These preliminary results demonstrate the effect of herd size and consequently farming conditions on LPL. This study is the first step in developing models for routine genetic evaluations for longevity in Croatian dairy breeds.