

Original article

The effects of genotype and selected environmental factors on colostrum production and intake in cattle

I. Antkowiak, J. Pytlewski, M. Jakubowski, R. Skrzypek

Department of Cattle Breeding and Milk Production, Poznań University of Life Sciences,
Wojska Polskiego 71 A, 60-625 Poznań, Poland

Abstract

The aim of this study was to determine effects of genotype and selected environmental factors on colostrum production, intake, and efficiency in the cattle. The investigations were conducted on 67 dam-calf pairs. All cows were of Polish Holstein-Friesian breed, the Black-and-White variety (PHF-HO), whereas calves were sired by bulls of the following breeds: PHF-HO, Polish Holstein-Friesian of the Red-and-White variety (PHF-RW), Jersey (JE), Montbéliarde (MB) and Limousine (LI). The colostrum was collected from cows and offered to calves “from bucket” thrice a day.

The amount of produced colostrum considerably exceeded the ability of its consumption by calves. Low share of HF genes in the cow, older cow's age and calving in the period from January to April appeared to be favorable factors for colostrum production. Calves born to cows with low HF gene share drank more colostrum than calves originating from cows with higher gene share of this breed. Crosses with JE drank the highest amount of the colostrum in relation to body weight, while MB-sired calves drank the highest amount in absolute terms. Colostrum intake was positively correlated with the dam's age. Furthermore, it was shown that in case of the first colostrum intake the most favorable period was from May to September, while in cases of total intake in the first day of life and mean intake in the first 5 days of life it was the period from January to April. Crosses with JE were characterized by extremely high use of colostrum per unit of body weight gain.

Key words: cattle, colostrum, production, intake, utilization