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Abstract Submission Form

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Title of your paper The use of beef semen in Italian Holstein cows

Insert ABSTRACT text

The practice of beef-on-dairy (BoD), which involves inseminating dairy cows with beef semen, is gaining global interest due to its ability to produce crossbred offspring with higher market value compared to purebred dairy animals. According to the literature, the most economically profitable insemination strategy of dairy farms involves using BoD from second-parity cows onwards to generate saleable crossbred calves and sexed dairy semen for the remaining part of the herd, i.e., heifers and genetically superior cows (mainly primiparous) to produce herd replacements. The aim of this study was to characterize the use of BoD in Italian Holstein cows. An exploratory descriptive analysis was performed based on ANAFIBJ data spanning the years 1995-2022 and including information on beef x Holstein crossbred calves (n = 444,659) in 11,614 herds. The dataset contained information on ID, date of birth and sex of the crossbred calf, ID of the herd, ID and breed of the sire, ID, date of birth, and parity of the dam, calving ease (0 = difficult; 1 = easy), gestation length (days), and stillbirth (0 = calf that died within 48

hours from birth; 1 = animal alive at 48 hours from birth). The use of BoD increased from 1995 to 2002, reached a quite stable plateau from 2002 to 2017, and increased thereafter. Most of crossbred calves were sired by Belgian Blue beef breed (74.0%), followed by Limousine (15.7%), Piedmontese (6.12%), Marchigiana (1.40%), Inra95 (0.84%), Angus (0.76%), Charolaise (0.70%), Chianina (0.42%), Romagnola (0.02%), Podolica (0.01%), and Maremmana (0.01%). The latter three sire breeds were excluded from subsequent analyses due to very low number of crossbred calves available. The dataset accounted for fewer heifers bearing a beef x dairy calf (11.9%) compared to primiparous (27.5%) and secondiparous cows (25.0%). Overall, easy and difficult calvings represented 71.4% and 28.6% of the dataset, respectively. Cows inseminated with Angus and Limousine semen had the highest incidence of easy calvings (79.0% and 77.4%, respectively), whereas those inseminated with Piedmontese semen had the lowest incidence (65.7%). The average stillbirth rate was 6.50%, with the highest value for Limousine-sired calves (8.43%) and the lowest for Inra95- and Angus-sired calves (2.82% and 3.71%, respectively). Gestation length averaged 281.2 days and the highest (284.1 d) and lowest (279.1 d) values were observed for cows inseminated with Inra95 and Angus, respectively. Generally, dams bearing male calves had longer gestation and more difficult calving than dams bearing female calves. In addition, stillbirth was higher for male than female calves. In conclusion, BoD is a common practice in Italy and its interest and use are growing. Farm profit can benefit from combining the use of sexed semen on the best heifers and cows and beef semen on cows exceeding the replacement needs. The sire beef breed has an impact on the calving ease of the dam and stillbirth, and this has to be taken into account when BoD is used.

Enter keywords

Keywords: beef-on-dairy, crossbreeding, calving ease, gestation length, stillbirth.