



Effect of mating strategies on genetic and economic outcomes in a Montbéliarde dairy herd

Marie Bérodier, Vincent Ducrocq, Nathalie Bareille, C. Dezetter, M. Brochard

► To cite this version:

Marie Bérodier, Vincent Ducrocq, Nathalie Bareille, C. Dezetter, M. Brochard. Effect of mating strategies on genetic and economic outcomes in a Montbéliarde dairy herd. 69. Annual Meeting of the European Federation of Animal Science (EAAP), Aug 2018, Dubrovnik, Croatia. hal-02734509

HAL Id: hal-02734509

<https://hal.inrae.fr/hal-02734509>

Submitted on 2 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Effect of mating strategies on genetic and economic outcomes in a Montbéliarde dairy herd

M. Berodier^{1,2}, M. Brochard^{1,3}, C. Dezetter⁴, N. Bareille¹ and V. Ducrocq²

¹*MO3, 259 route des Soudanières, 01250 Ceyzériat, France*, ²*UMR GABI, AgroParisTech, INRA, Université Paris-Saclay, Domaine de Vilvert, 78350 Jouy-en-Josas, France*, ³*Umotest, 259 route des Soudanières, 01250 Ceyzériat, France*, ⁴*Unité de Recherche sur les Systèmes d'Elevage (URSE), Ecole Supérieure d'Agricultures (ESA), Université Bretagne Loire, 55 rue Rabelais, 49007 Angers, France*, ⁵*BIOEPAR, INRA, Oniris, Université Bretagne Loire, La Chantrerie, 44307 Nantes, France; marie.berodier@inra.fr*

This study compared the genetic and economic evolution of a 77-cow Montbéliarde dairy cattle herd after 15 years of simulation including 10 years with 8 different mating strategies: with or without genotyping of all female dairy calves combined with or without use of sexed semen and combined with or without use of beef semen. A mechanistic, stochastic and dynamic model was used to mimic the farmer's decisions and individual cow's biology. Females true breeding values for milk yield, fat content, protein content, fertility, longevity and udder health traits influenced production, reproduction, health and culling of the animal. For scenarios with sex semen, the best heifers and 1st lactation cows on breeding objective (calculated as a linear combination of the 6 traits modelled) were inseminated with sexed semen to guarantee replacement with genetically better females. For scenarios allowing beef cross, the worst cows on breeding objective were inseminated with beef breed semen to obtain higher economic value from calves. After 10 years of alternative mating strategies, variations in genetic gain (+12% to +19%) and gross margin (+40% to +49%) show a clear advantage for the scenarios using sexed semen and no beef semen compared to the scenario without female genotyping and with conventional semen only. However, those scenarios require much larger total expenses and strongly increase the number of heifers to be reared. Therefore, it is highly dependent on economic assumptions, especially on the price of 'ready-to-calve' heifers. The scenario using sexed semen, beef semen and female genotyping performed better than the scenario with conventional semen only and without female genotyping. It allows important genetic gains at herd level and a diversification of the sales when market conditions fluctuate.