

Summary

Over the last decade, a progressive decline of the efficiency of the breeding scheme of the Sarda dairy sheep breed has been observed. In this context, a program for implementing innovative genomic tools has been established. The current state of the selection scheme of the Sarda breed is summarized and the potential impact of innovative genomic tools taking into account their economic sustainability is drawn. A female reference population was created to identify LD o causal mutations and to trigger genomic selection. Results of QTL detection and accuracies of Herd Book rams genomic predictions realized on the basis of the female reference population show that it is a realistic option to increase the effectiveness of the current selection program. The impact of the female nucleus may be increased by an organization of the HB flocks in levels according to the application of selection tools *i.e* the incidence of pedigree known and the engagement in AI program.

Keywords: QTL, MAS, genomic selection, reliability