According to article 19 of the EU Regulation 2016/1012 on Animal breeding, endangered breeds can benefit from a derogation to enable animals without origin to enter the main section of the herdbook. The development of a genotype-based model able to correctly assign animals to an endangered breed has already been proven to ease the application of this derogation. However, the impact of standardisation of genotypes (i.e. SNP column mean centred and divided by the standard deviation), Hardy-Weinberg (HW) equilibrium and their combination on the accuracy of a breed assignment model has not been studied yet. The objective of this study was to optimize the accuracy of a breed assignment model dedicated to three local cattle breeds: the Dual-Purpose Belgian Blue (DPBB), the East Belgian Red and White (EBRW) and the Red-Pied of Ösling (RPO) through four pre-treatments modalities: no pre-treatment (1), standardisation of genotypes (2), HW equilibrium filter (3) and standardisation of genotypes in HW equilibrium (4). Most informative SNPs were selected using a partial least squares-discriminant analysis, making four panels of (1) 2,084; (2) 2,005; (3) 1,930 and (4) 1,843 SNPs. The method of nearest shrunken centroids was then parameterized and validated for each of these four panels. For DPBB, pre-treatment (4) provided the best validation accuracy (97.24%). For EBRW and RPO, pre-treatment (2) provided the best validation accuracy (94.42% and 53.24%, respectively). The low level of accuracy found in RPO was expected as their breeders often used EBRW animals in mating. If a priori RPO animals identified as RPO or EBRW are grouped, validation accuracy reached 83.45%. However, when comparing confidence intervals of each model for each breed, none of the pre-treatments was significantly better than others. According to the objective, different strategies can therefore be chosen when developing a breed assignment model. Pre-treatment (2) can be used to detect more animals to be included to the herdbook. Pre-treatment (1) can be applied to develop quickly a performant model. To be parsimonious, pre-treatment (4) should be preferred.