



Admixture analysis in the Franches-Montagnes horse breed using whole-genome sequences

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The Franches-Montagnes horse breed

- > Only indigenous Swiss horse breed
- > Small population : 20,000 individuals
- > Closed stud book since 1998
- > Breeding values for conformation, performance and white markings

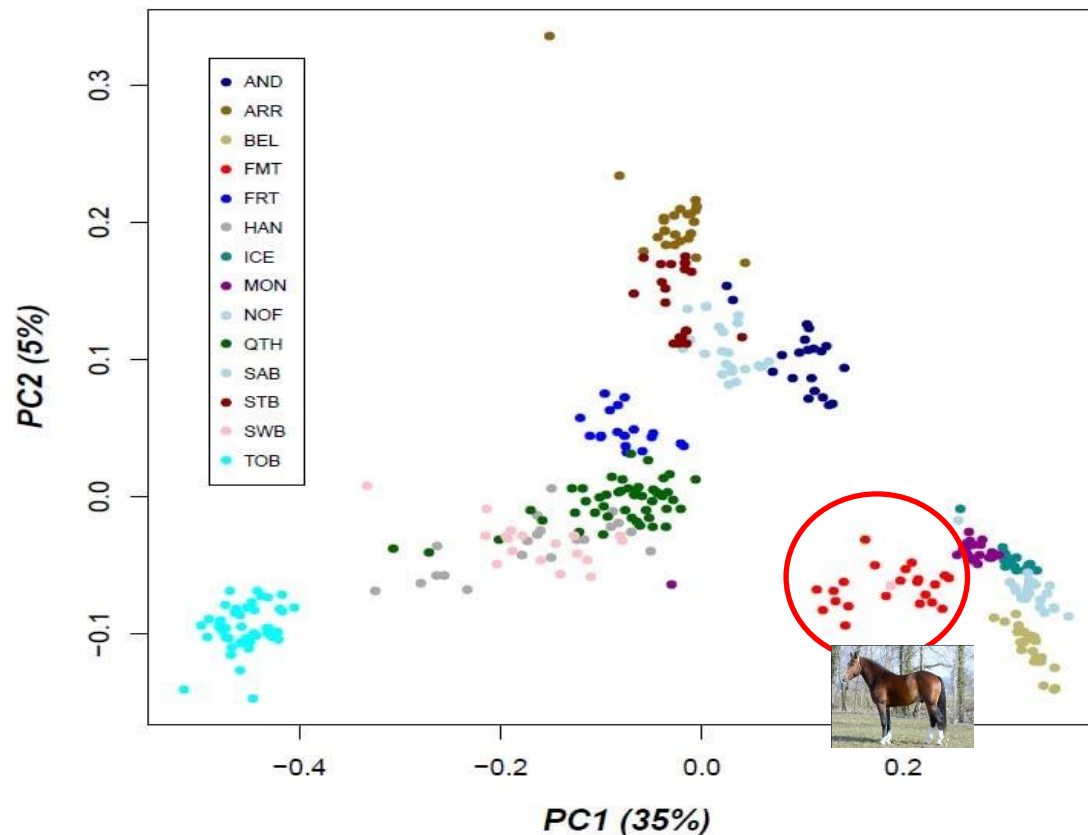


FM in the global world of horse breeds

Prinicipal Component Analysis (PCA)

14 horse breeds

PCA analysis (Gentrain)



Development and Use of Equine SNP Array

Breed establishment

- > Established in the 19th century
- > Use in military and in agriculture



Introgression

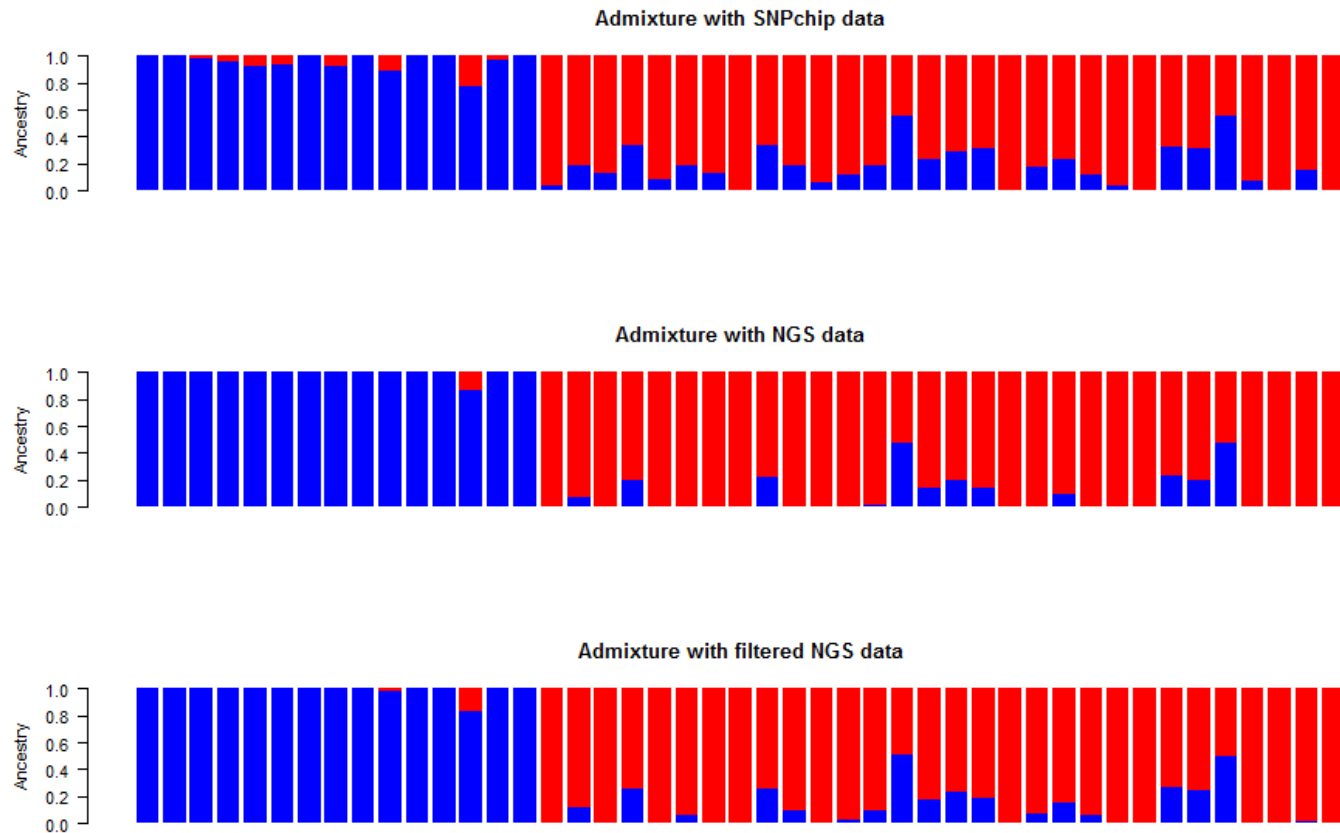
- > One thoroughbred Arabian (1960s)
- > Two Swedish WB (1970s)
- > Two Swiss WB (1990s)



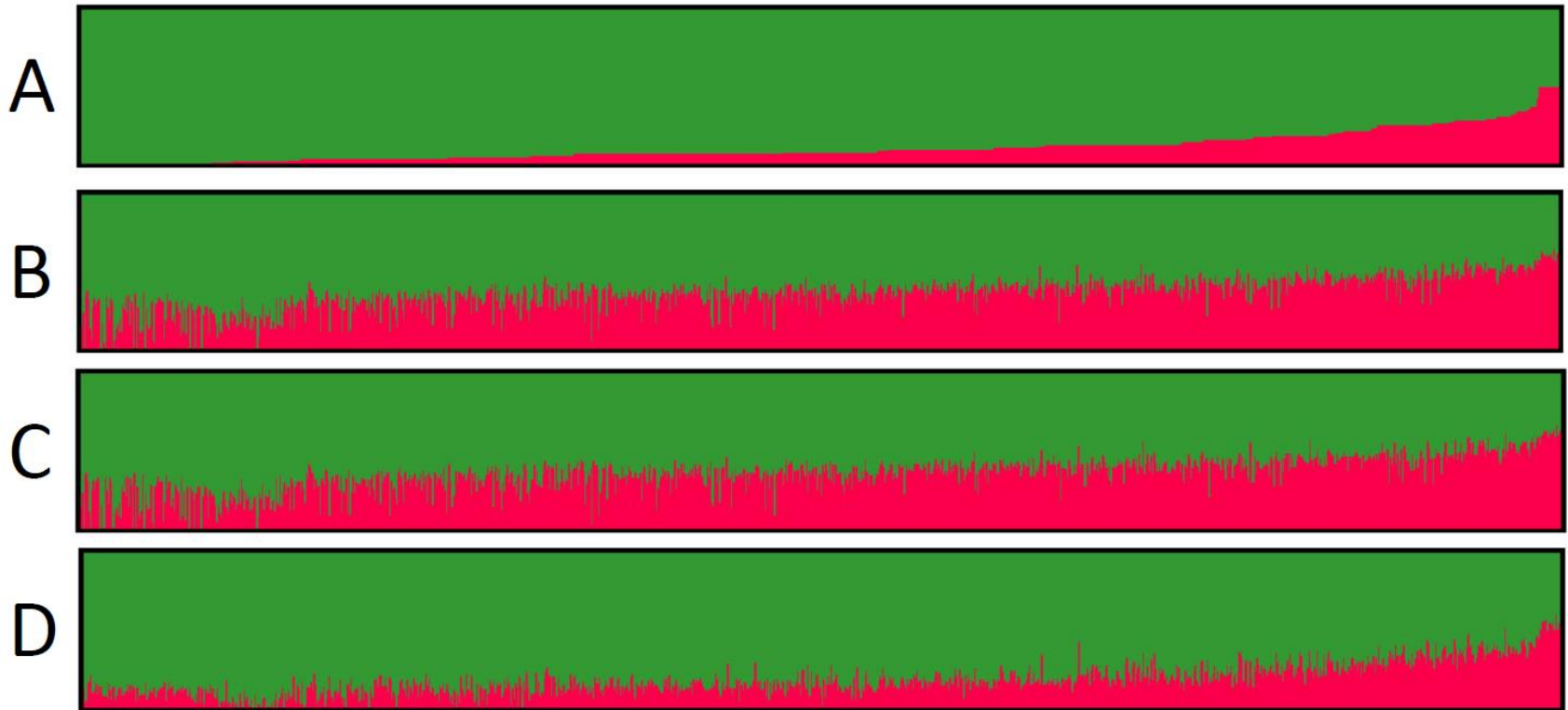
Material and Methods

- > Calculation of Admixture
- > Admixture v1.23
- > NGS data for 30 FM and 15 WB
- > SNP chip data of 1,077 FM and 600 WB

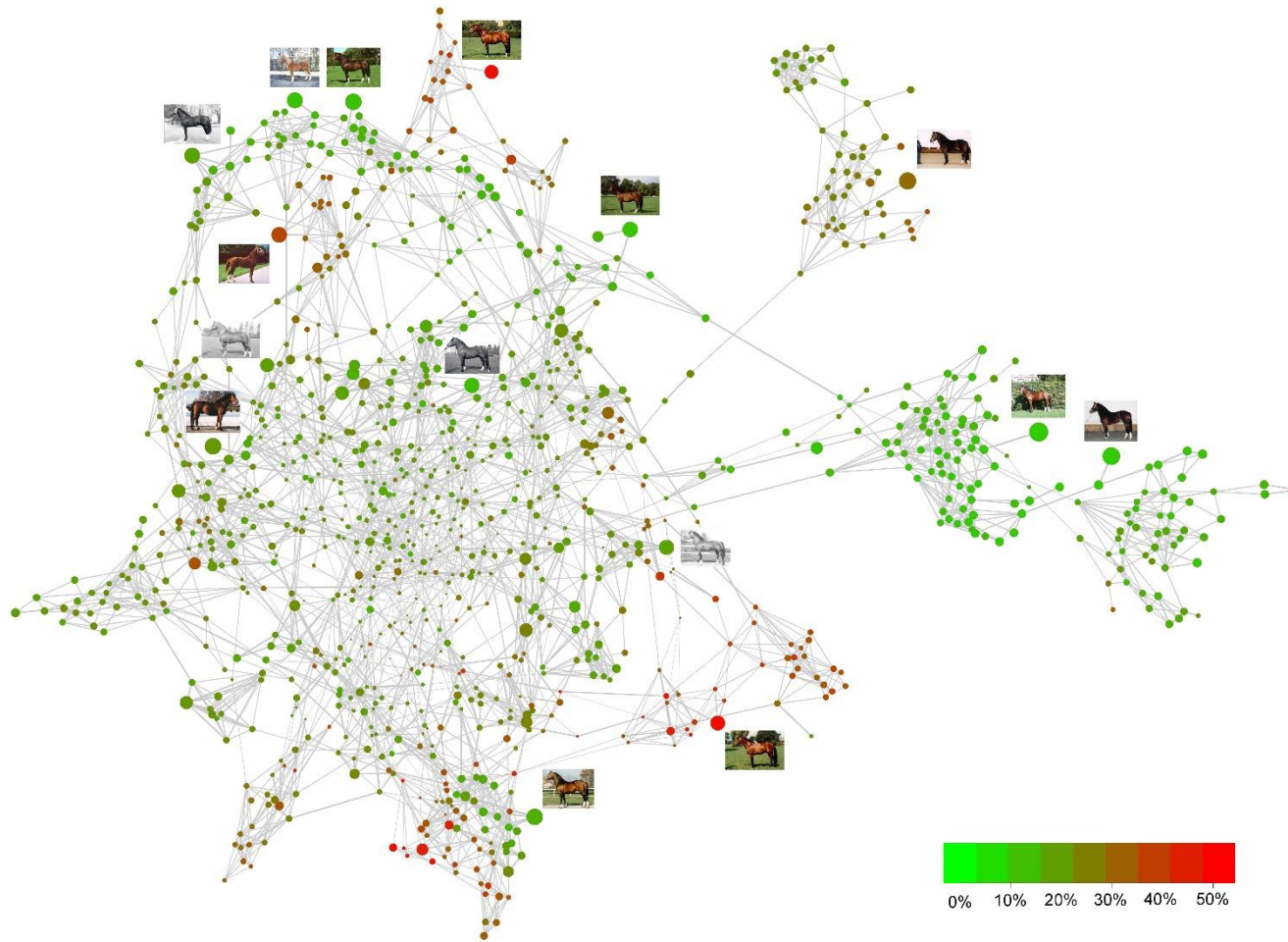
Comparison of sequenced horses



Admixture



The FM population structure



Conclusion

- > The FM population shows different levels of Admixture depending on the type of information used
 - > Imputation does not seem to have an effect on admixture
 - > Size of reference population has impact on estimated admixture
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Thank you for
your attention!