**Session 01**

**A conservation plan for the Danish Jutland horse**

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The Jutland breed is an original Danish horse breed, which previous was used as a draught horse in the farming industry. The aim of this study was to present a conservation plan for the Jutland horse. In year 2016, the Jutland horse breeding organization initiated a conservation project supported by the Danish Committee on farm animal genetic resources. Using optimum contribution by the EVA software, we identified 12 colts for future breeding. With economic support, the breeding organization raised the 12 colts until March 2019 where they were scored for conformation. In March 2019, only 11 stallions out of the 12 stallions from the conservation project were available for mating. The project also included 88 breeding mares for which their owner agreed to participate in the project and thus to use one of the 11 stallions for breeding their mare in 2019. SEGES, the National Committee of Horses provided the data for the study. The pedigree contained 4,757 individuals and the average relationship between males and females was 0.184. In order to ensure ownership of the project we first assigned 4 matings to all stallions in the project. Next, 44 matings were distributed to the stallions using EVA where each male was allowed to mate a maximum of 8 mares. Out of the 11 stallions, 7 were selected using optimum contribution. Finally, we optimized the matings between the 88 mares and the 11 stallions while minimizing inbreeding in the next generation. The average inbreeding was 0.071 and the rate of inbreeding was 0.0025. In a third step, we also ran EVA with all approved stallions and all alive mares under 15 years. This provided input to the use of stallions from the project and other approved stallions, which were not part of the conservation project. This study demonstrates how to carry out a conservation plan for an endangered horse breed.

**Session 01**

**Does the Walloon Piétrain pig breed require preservation measures?**

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Piétrain pigs are used worldwide as terminal sires, and they are not expected to require preservation measures. However, the number of pure Piétrain breeders is dwindling everywhere and also in Wallonia (southern Belgium), the region where the breed is originated from. As a first step, the objective of this study was to assess the genetic diversity in Walloon Piétrain pig populations by using pedigree information. A total of 199 boars, whose breeders could be identified and which passed through performance testing using crossbred progeny at the performances recording station during the last ten years, were used for pedigree extraction. Kinship coefficients were determined and a classical multi-dimensional scaling (MDS) was performed on those boars for herd comparison purposes. In addition, breeders who have stopped their activity were identified in order to check genetic diversity loss overtime. Four groups were identified: a first cluster of Walloon Brabant breeders; a second core cluster, which suggests high levels of inbreeding, composed mainly by Hainaut breeders; a third cluster with great diversity, represented by a breeder whose animals may had German boars influence; and the last cluster formed by two breeders. The breeders from all four clusters are in ongoing pig breeding activities. However, due to their aging as well as the lack of new breeders, conservation measures establishment may be urgent in order to preserve genetic resources. As Walloon Piétrain breeders tend to keep very different phenotypes, complementary principal components analysis will be performed by using pseudo-phenotypes, by using deregressed estimated breeding values (EBV), to be compared with previous MDS results. Finally, single nucleotide polymorphisms (SNP) markers from different European Piétrain pig populations will be used to determine genomic relationships to further verify if Walloon Piétrain population(s) have intrinsic particularities, which would justify conservation measures.