

Cytoplasmic Genetic Diversity in Molecular Markers within and Between *Lolium* Cultivars



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Figure 1: Traditional field distinction trials.



Introduction

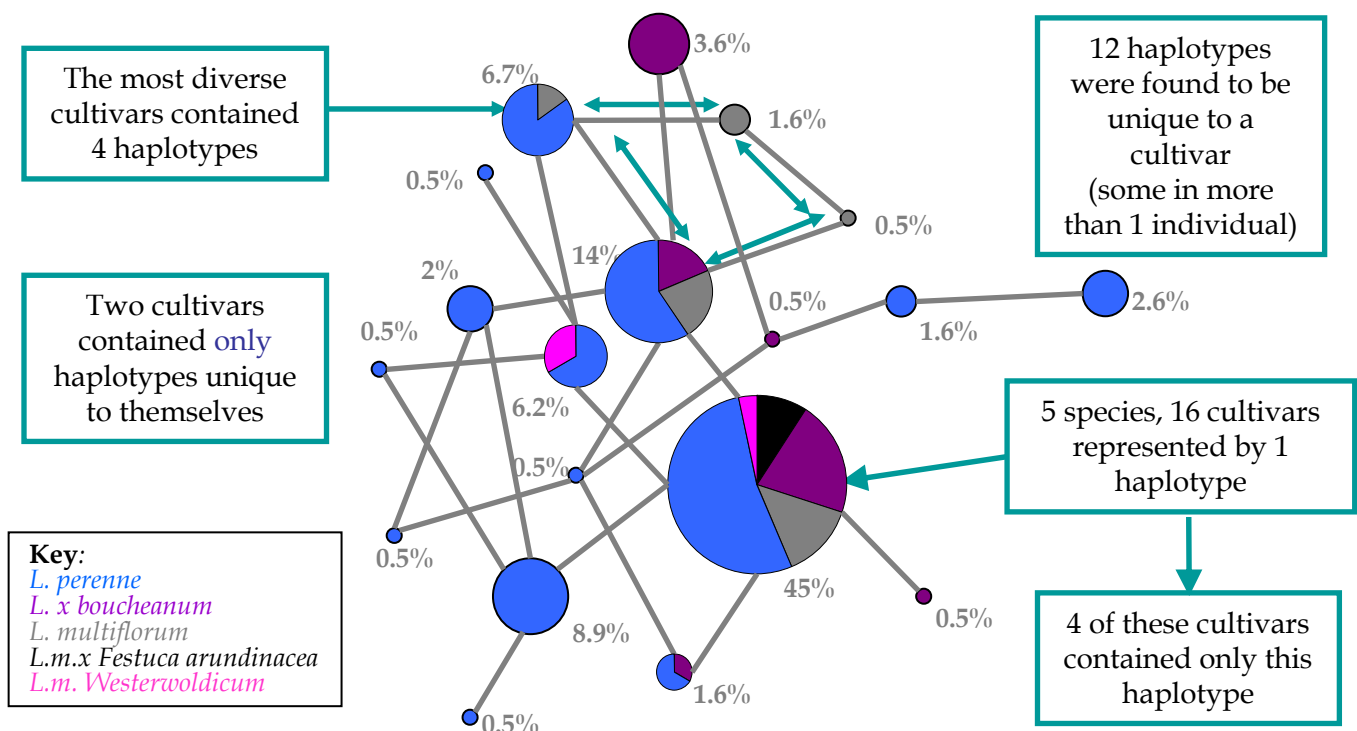
This study aims to identify the potential of Single Nucleotide Polymorphism (SNPs) to manage the increasing number of control varieties used in traditional field trials (Figure 1) to award Plant Breeder's Rights.

Materials and Methods

Eight individuals representing 24 ryegrass (*Lolium* spp.) cultivars typical of those available in commerce were screened for 10 SNPs within the *trnT-trnL* intergenic spacer using allele-specific PCR. The median joining network was analysed using the Network package. (www.fluxus-engineering.com)

Results

Haplotype groupings of 24 cultivars of *Lolium* spp. as described by 10 SNPs are shown in the figure below. Nodes show groups of haplotypes. Size of nodes are proportional to haplotype frequency. Colours indicate species. Values show proportion of sample set represented by the haplotype.



Conclusions

Considerable genetic variation was observed. Not all cultivars were distinct, nor were species demarcation maintained. Data shows the degree of shared gene pools within the sample set. Further markers are required to better describe the genetic relationships at the cultivar level.