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Ann Zootech (1995) 44, Suppl, 60

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Improving quality in tall fescue (*F. arundinacea*) is a major objective in forage grass breeding. However, selection based on *in-vivo* tests (voluntary intake or digestibility) is not possible in grasses and we have therefore to use indirect criteria. This abstract aims to compare final quality, as assessed from animal trials, of three genotypes resulting from three different breeding strategies developed in the INRA Station of Lusignan : 1) selfing within European tall fescue and mass selection for leaf flexibility (Cv 'Lubrette'), 2) hybridisation between European and Mediterranean ecotypes of tall fescue and fertility restoration by colchicine-induced polyploidization (experimental genotype 'Amphiploid') and 3) intergeneric hybridisation at the tetraploid level between Italian ryegrass and a wild tall fescue species, *F. arundinacea* var. *glaucescens*, (experimental genotype 'Festulolium'). The Cv 'Clarine' bred within European tall fescue and without any particular attention to quality, was used as control. Heading date was similar among the four genotypes and hold to have not interfered with quality in the comparison.

The genotypes 'Clarine', 'Lubrette' and 'Amphiploid' were assessed during three years (1980-1982) while the genotype 'Festulolium' was compared to Cvs 'Lubrette' and 'Clarine' during the years 1992 and 1993. Each year, six castrated adult rams were individually housed in digestibility crate and fed one genotype during all the growing season. Fresh forage was daily cut, chopped and given twice a day *ad libitum*. Feeding the experimental genotypes lasted two to four consecutive weeks at the two first cuts each Spring. Daily data on voluntary intake (VI, g/kg $W^{0.75}$) and digestibility of organic matter (DOM, %) were weekly averaged. These measurements (21 per genotype from the 1980-82 trial and 9 from the 1992-93 trial) were computed to estimate the least-square means of the genotypes using analysis of variance (unbalanced design) and having checked that there was no significant genotype * trial interaction. Spring dry matter yield (DMY) of the four genotypes was obtained from numerous independent trials carried out for other breeding purposes.

DMY variability resulted mainly from contrasting seasonal growth rhythms among genotypes. Because of the Mediterranean origin of one of the parental ecotype, 'Amphiploid' has an early growth at the end of Winter, resulting in high yield in Spring, but was balanced by a lower yield in Summer due to growth dormancy under hot temperature. Irrespective of DMY, there was a large genetic variability of DOM (from 62.2 to 66.3 %) and of voluntary intake (from 54.3 to 59.1 g/kg $W^{0.75}$). Selection for palatability through leaf flexibility led to increase significantly DOM but not VI of Cv 'Lubrette'. Polyploidization in 'Amphiploid' (2 n = 12 x = 84) seemed also a method for improving DOM but was associated with lower VI, probably because of leaf rigidity inherited from the Mediterranean ecotype. 'Festulolium', retaining the high quality of the Italian rye-grass progenitor, achieved a good compromise by gaining in both DOM and VI.

Improving quality in tall fescue can be therefore obtained by different breeding strategies involving more or less independent causal mechanisms as cytoplasmic composition, fibre amount, cell size, cell wall structure. Recent release of 'Amphiploid' Cvs as 'Lutine' and 'Lunibelle' should contribute to promote the use of tall fescue in the South countries of EC. In future, manipulating fescue x rye-grass hybrids seems promising for combining both high quality and adaptative value in a unique forage grass genotype.

Genotype	DMY (100 = 8.1 t/ha)	DOM (100 = 62.2 %)	VI (100 = 57.1 g/kg $W^{0.75}$)
Clarine	100[a]	100[a]	100
Lubrette	101[a]	106[b]	101
Amphiploid	109[b]	107[b]	95
Festulolium	103[a]	105[b]	104