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The effect of utilization method on the changes of species composition of sward with share of *Festulolium loliaceum* (Huds.) P. Fourm.

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Key words: *Festulolium loliaceum*, simulated and pasture utilization

Introduction In recent time, there were observed great interest of grassland, especially pastures. Many pasture studies are connected with simulated utilization (frequent cutting in pasture maturity), without zoogenic factors compliance. Perennial utilization affects simplification of species composition of sward and its degradation, especially in the postboggy habitats (Baryta, 2001). The most important feature is stable species composition of sward with share of valuable grasses and legumes. Breeders seek new genotypes, which would be characterized by best adaptation to stress environmental conditions. Recently attention has focused on the crossing of *Lolium* and *Festuca* species to obtain hybrids exhibiting desirable traits of both parents. Key objectives are to combine the persistency, winterhardiness and drought tolerance of fescues with the high herbage yields and quality of ryegrasses. One of the species can be *F. pratensis* × *L. perenne* hybrid [*Festulolium loliaceum*] (Kulik et al., 2005). The aim of this work was to analyse the effect of utilization method on the changes of species composition of sward with share of *Festulolium loliaceum*.

Materials and methods The studies were carried out in 2002-2006 at Didactic-Research Station in Sosnowica. Permanent grassland complex is located in region of Wieprz-Krzna Channel (eastern Poland). Experiment was set up on pasture quarter of a peat-muck soil. There were considered two utilization methods—simulated and pasture. In 4 replications there were sown 6 grass-legume mixtures, but this paper presents results of species composition of sward with share of *Festulolium loliaceum* strain (30%), *Phleum pratense* cv. Obra (35%), *Dactylis glomerata* cv. Areda (10%) and *Trifolium repens* cv. Romena (25%). The initial hybrid between tetraploid forms of *Festuca pratensis* and *Lolium perenne* was obtained at the Institute of Plant Genetics PAS in Poznań. Breeding materials were developed at the Szelejewo Plant Breeding Station. During 5 years studies there was applied controlled fertilization (N-75, P-31 and K-75 kg ha⁻¹). Pasture sward was grazed by Limousine cattle 5-6 times during the grazing season while the simulated one was cut the same times. Area of particular pasture plots totaled 30 m² and the simulated one 15 m².

Results and discussion The results indicate that *Festulolium loliaceum* strain was characterized by the stable share in the sward in particular years of the studies (Figure 1). In the 3rd regrowth 2006, there were noted the higher share of this hybrid in pasture sward (40.7%) in comparison to simulated one (31.0%). After winter 2003/2004, there were observed decreases of *Festulolium loliaceum* share and its fast regeneration during vegetative season. In both method of utilization, there were noted high share of *Dactylis glomerata*, which it is a very aggressive species (Baryta, 2001). Moreover, there were noted low share of *Phleum pratense* and *Trifolium repens*, especially in years 2004-2006. In the last period of the studies simulated sward characterized by the higher share of other species, mainly herbs and weeds in comparison to pasture one.

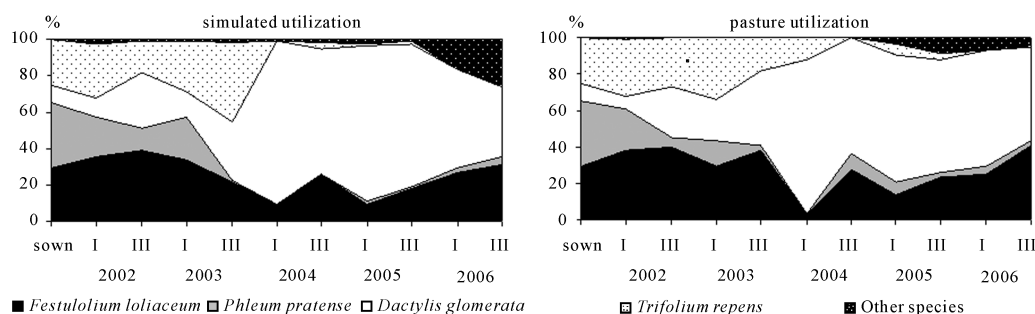


Figure 1 Changes of species composition of sward in dependence on the utilization method (%).

Conclusions The studies confirmed utility of *Festulolium loliaceum* for pasture mixtures in post-boggy habitats of Eastern Poland. Simulated sward was characterized by the higher share of herbs and weeds, especially in the last period of the studies.

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