

Floristic composition as parameter of quality of ass. *Agrostietum vulgaris*

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Introduction In hilly-mountainous region of Serbia, meadows and pastures are the main sources of roughage feeds and grazing for ruminants. On Stara Planina mountain, in SE Serbia, meadows and pastures with different plant associations and a wide range of species of differing nutritional value predominate. Until the 1930s, and even until now, only species of the grass family and leguminous plants were desired and all other plants were considered worthless or harmful Klapp (1986). The main criteria to evaluate whether a meadow plant species is a weed are: is it poisonous?; is it suitable for consumption by domestic animals as regards its morphology?; do animals eat it or not?; is it nutritious and digestible? This study aimed (1) to quantify the proportion of useful plants, other species and weeds based on the presence of certain plant species at 3 locations in ass. *Agrostietum vulgaris* and, (2) based on this data, to establish the quality potential for ruminant nutrition. Measures to improve the quality of grassland arise from the results obtained.

Materials and methods By the end of July 2004, grassland yield on Stara Planina mountain at 650-800m a.s.l. was determined at 3 locations. In 2 replicates, samples were taken from an area of 1m² to determine the floristic composition. The proportion by weight of different species was determined and a categorization based on quality according to Kojic (1990, 2001) was carried out.

Results *Agrostietum vulgaris*-type grassland occupied circa 30% of grass areas in Serbia. Productivity often was very low and biomass of medium to poor quality. Unfavourable floristic composition was the main cause. It reflected low soil nutrient levels and poor management, since *Agrostietum vulgaris*-type meadows are man-made (of secondary origin), created through the effects of cutting forests and mowing and fertilisation. They also grew on areas used to grow agricultural crops. They rely on human intervention for their preservation and they are under constant change as regards quality and quantity. In ass. *Agrostietum vulgaris* in the Rudanj highlands, 75 species were determined, although the total number could be up to 100. Table 1 shows the number of quality species of grass, legumes, other species and weed species. The total number of species in ass. *Agrostietum vulgaris* at all 3 locations was relatively small and varied from 23 on 1, and 26 on the remaining 2 higher locations. *Agrostis vulgaris* represented circa 20% of biomass at location I, 27% at location 2 and 10% at location 3. At all locations, *Arrhenatherum elatius*, *Dactylis glomerata*, *Festuca arundinacea*, *Lolium perenne*, *Festuca rubra*, *Poa bulbosa* and *Poa pratensis* were useful grasses. *Lotus corniculatus* *Trifolium repens* *Trifolium incarnatum*, *Medicago lupulina*, *Trifolium campestre* were useful legumes. *Achillea millefolium* was another useful species, and *Rhinanthus minor* was included amongst the harmful and poisonous species.

Table 1 Numbers of species and their % in biomass in quality groups in ass. *Agrostietum vulgaris* at 3 locations

Association Location	<i>Ass. Agrostietum vulgaris</i>									
	Useful grass		Useful legumes		Useful others		Weeds		Useful sp.total	
I Gulenovci 650 m	8	34.78	9	39.13	1	4.35	5	21.74	18	78.26
II V.Odorovci 730 m	8	30.77	5	19.23	1	3.85	12	46.15	14	53.85
III Mojinci 800 m	7	26.92	9	34.61	-	-	10	38.46	16	61.54

Conclusion The number of species in ass. *Agrostietum vulgaris* was very low at 3 locations on Stara Planina mountain (650-800m a.s.l.); 23 were at the lowest location and 26 at the other 2 locations. Useful grass species represented 26.9-34.7% of biomass, useful legumes were 19.2-39.1%, and useful other species were 21.7-46.1%. Considering that the association is man-made, optimal NPK fertilisation will improve the quality of grassland with higher participation of weeds, which will contribute to higher production of animal feed.

References

Klapp, E. (1986). Visen und Weiden. Verlag Paul Parey. Berlin-Hamburg

Kojić, M. (1990). Livadske biljke. Naučna knjiga, Beograd

Kojić, M., S. Mrfat-Vukelić, S. Vrbničanin, Z. Dajić & S. Stojanović (2001). Korovi livada i pašnjaka Srbije.

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