INFLUENCE OF ELEVATION ABOVE SEA LEVEL AND SLOPE EXPOSURES ON YIELDING OF UNFERTILIZED PASTURES IN THE MAŁE PIENINY MOUNTAIN RANGE

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ABSTRACT

Permanent grasslands located at higher altitudes in Małe Pieniny mountain range are used as pastures with large flocks of sheep. These areas lack of mineral fertilization for many years due to economic reasons. Only once in 5-6 years they are fertilized organically with fresh animal faeces.

Under such conditions, the dominant influence on production of grass biomass have such factors as climatic, edaphic (soil) and these associated with location of pasture. Studies on this issue were carried out in the years 2013-2016 within the framework of the FINEGRASS Project entitled: „Effect of Climatic Changes on Grassland Growth, its Water Conditions and Biomass".

Since brown soils with crude soils that occur in considered area are characterized with similar wealth and grain size distribution, their differentiating factor is location and especially elevation above sea level as well as slope exposures. Research activities were conducted in the Grajcarek stream valley along the profile line established on the northern and southern slope within altitude range of about 600 to almost 950 m a.s.l.

Studies aimed to identify how the quantitative and qualitative properties of grass biomass are subject to change under conditions of variable terrain elevation. The purpose was also to compare these characteristics at the opposite slope exposures (N-S).

There were used those methods of measurement on the assessment of plant production that are widely accepted in the Grassland Science, when analytical methods relate to botanical composition and computational methods intend to designation of dry matter of yield and its utility value, expressed numerically.

The gathered results show that the productivity of mountain pastures gets lower with increasing elevation of terrain above sea level. At the same time, their utility value gradually decreases, as growing number of plants appear with lower forage value. It was found that at specific weather conditions and in certain years of research, yields on northern slopes were higher by 8-23% than those obtained on southern slopes. With the growing elevation there also increased the differentiation of yield levels. From these studies it can be concluded that more beneficial for the pastoral economy is organization of grazing on pastures located at lower altitudes of northern exposed mountain slopes.

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