

Eastern Alpine and Dinaric Society  
for Vegetation Ecology

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## Book of Abstracts



*Kitaibela vitifolia*

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# Poster presentation



*Kitaibela vitifolia*

## **Decrease of summer rainfall negatively affects forage yield and sheep body state threatening farming sustainability: insight for facing climate changes**

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Mediterranean climates proved to undergo to increase the summer aridity. Changes in the rainfall regime have serious consequences for ecosystem functions and services besides on extensive farming sustainability. In fact, increase in drought stress proved to worsen forage quantity and feed value. Thus understanding the effects of drought intensity on forage and animal welfare besides the definition of the threshold value of summer rainfall allowing for the maintenance of a sufficient animal welfare is a key issue. The hypothesis that the decrease of the summer rainfall amount, affecting forage yield, worsen the sheep body state was tested. The research was performed in 2007, 2008 and 2009; for each year daily temperature and rainfall amount were gathered from the climatic station of the Torricchio Mountain Natural Reserve. In order to assess the aboveground phytomass, 10 fenced stands were positioned on semi-mesophyllous grasslands; the aboveground phytomass was collected from June 2<sup>nd</sup> to the end of August. To assess the body state of sheep, the Body Condition Scores (BCS) method was used since its relationship with both pasture and ruminal features was proved; also endocrine and metabolic blood indicators confirmed its reliability. Animals were evaluated after a period when nutrition was based on dry hay and cereals (T1), after the period of highest productivity and of pasture flowering peak (T2) and after the maximum of pasture dryness (T3). From a climatic point of view 2007 and 2008 years had summer rainfall lower than those of the average value (1950-2000) of the study area (-70% in 2007 and -17% in 2008); 2009 was characterized by a higher amount of summer rainfall (+15%). Also the net primary productivity showed high differences with the lower productivity in 2007 and the higher in 2009. The trend of grassland productivity follows that of the summer precipitations. BCS scores down to value near 2.0 in late summer 2007, notably below than the lower value of the central quartiles of BCS obtained by the whole data set (2.4); it is also below the lower value of the central quartiles of BCS obtained by the T3 data set (2.2). So, the summer rainfall amount of 2007 may be considered lower than the threshold value necessary to guarantee a sufficient grassland productivity to sustain animal well-being. In fact, the BCS range value of 2.2-2.4 can be considered as a threshold value.