
Crops and urban systems

Poster 22 – Influence of red deer (*Cervus elaphus* L.) grazing on yield reduction and changes in the chemical composition of grassland forage: experiences from three organic cattle farms in the southeastern Slovenia

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With more than 60 % of forest cover, Slovenia is the third most forest abundant European country. In Slovenia far most harmful species of game are wild boar (*Sus scrofa*) and red deer (*Cervus elaphus*) and our presentation deals with the yield loss due to red deer grazing on permanent grassland at three organic farms. Grassland experiments were conducted in 2013 and 2014 at three locations (Novi Lazi, Kačji Potok, Stari Breg) in Kočevje region (SE Slovenia). In both years, at all locations, the grassland experiments lasted from the end of the first decade of May, when we mounted iron cages for the first time, till October 14 in 2013 and October 3 in 2014, when we carried out the last (third) cut. Considering the results of all three cuts at all three locations we determined that an average optimal yield of dry matter on grassland in Kočevje region was 8.1 to 8.2 t/ha and total yield loss due to red deer grazing accounted from 48-52 % (3.9-4.3 t/ha). Among locations we also confirmed differences in optimal productivity on permanent grassland and yield loss due to red deer grazing. The lowest optimal total yield of forage dry matter (6.7-7.2 t/ha) occurred in Stari Breg, where we also confirmed the largest yield loss of herbage dry matter (56-75 % or 4-5 t/ha). In Novi Lazi, the total optimal yield was 8.3-9.3 t/ha and 33-40 % (2.7-3.7 t/ha) was the yield loss and in Kačji Potok we measured 7.7-9.6 t/ha of forage dry matter and 47-53 % (3.6-5.1 t/ha) for yield loss. Red deer graze on permanent grassland in Kočevje region through the whole year but consequently the yield loss varies during the growing season with highest forage consumption in spring time (at first cut we determined the yield loss of 1.7-1.9 t/ha of dry matter) with a decrease to the end of the growing season (at the third cut we assessed yield loss of 0.9 t/ha of dry matter). Due to the intensive growth of grass sward on permanent grassland in spring, yield loss at the first cut was 38-40 % and at the third cut as far as 75 %. On permanent grassland at all three locations before cuts, there were no differences in abundance and foliage cover of grasses, legumes and herbs. The major output of such surveys was namely indication of species poor grassland on organic cattle farms in Kočevje region. The content of crude protein in treatment control was always higher than in fenced treatment. This was due to red deer grazing which rejuvenate grass sward with progressive defoliation and removal of herbage and force grasses to form new leaves which also hold the most important part of fodder quality. Crude fibre was the highest in herbage in treatment. Nutritional value of conserved feed at all locations was low (<5 MJ/kg dry matter) even at the first cut. This we attribute to poor floristical composition of grassland. Economical analysis showed that costs for feed on farm by presumption that farm breeds livestock in extent which is allowed by the inputs and considering the damage done by wildlife are higher because of primary production costs and feed purchases outside the farm which both lead to the current farm existence. The average additional cost per unit of land ranges from 182-344 EUR/ha – a consequence of different levels of intensity in red deer grazing on individual locations and different production capacity of grassland. We discovered that as a society we are lucky that permanent meadows in Kočevje are, despite the heavy red deer grazing from early spring, later on still cut. On the contrary the land will get abandoned and overgrown by bush vegetation.