

## **Abstract**

Biological nitrogen fixation is one of the most important biochemical reaction for life on earth. This paper presents the influence of the simple mixtures of perennial grasses and legumes and of the fertilization on dry matter production, quantity of nitrogen biological fixed. In this respect, we have experienced three mixtures consisting of *Onobrychis viciifolia* with *Bromus inermis* in different proportions, which were applied to three types of mineral, organic and vinassa fertilizer. The results obtained showed that under experimental conditions, total dry matter yields ranged from 6.43-9.99 t ha<sup>-1</sup>, the highest production was obtained from version A<sub>3</sub>b<sub>2</sub>, plant total nitrogen content (Nt) ranged from 3.09 - 3.47%, total nitrogen the specific consumption (CSTN) of culture *Onobrychis viciifolia* (Scop.) ranged from 43.65 to 47.31 kg t<sup>-1</sup> DM, intake of specific nitrogen-fixing microorganisms (ASNF) ranged between 55.99 – 76.00 kg ha<sup>-1</sup> and nitrogen remaining in the soil (NRS) ranged from 10.75 to 15.74 kg ha<sup>-1</sup>.

**Key words:** grasses, legumes, fertilization, nitrogen symbiotic