

EFFECT OF FERTILIZATION ON THE YIELDS OF TALL WHEATGRASS HARVESTED ONCE A YEAR

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Abstract

With the growing demand for energy, the requirements for energy sources have been growing too. In advanced countries, there has been a substantial development of renewable sources. In the conditions of Central Europe, biomass seems to be the most promising option. It is possible to utilize not only waste biomass but also the biomass grown on the purpose. Particularly in locations endangered by erosion, the growing of energy grasses is recommended since they not only provide protection against erosion but also perform a number of further ecosystem services. The methods of transformation of grass phytomass into thermal or electric energy include anaerobic digestion and direct incineration. This article presents the results of an experiment verifying the effect of various fertilization management schemes on the yields of the perennial energy grass called tall wheatgrass (*Elymus elongatus* subsp. *ponticus* cv. Szarvasi-1) harvested once a year. The experiment carried out on small parcels compared three levels of fertilization intensity. This involved mineral fertilization and fertilization with digestate; the control variant was not fertilized at all. The yield parameters were monitored for three years from spring 2013 when the experiment was commenced. The obtained results show a positive effect of fertilization of the grass on the grass yield. In the first two production years, the variant involving mineral fertilization showed, on average, a 22% increase in the dry matter yield than the variant without fertilization. The grass fertilized with digestate provided a 32% higher dry matter yield than the control variant.

Key words: fertilization, tall wheatgrass, yield