

Current Status and Prospects for the Use of Biomass of Phytoenergy Crops to Ensure the Energy Security of Ukraine

Tetiana Manushkina

Mykolaiv National Agrarian University, Mykolaiv, **Ukraine**,

e-mail: *latushkina2004@gmail.com*

It is projected that by the middle of the 21st century, alternative energy will supply nearly half of all energy resources, with biomass accounting for more than 20%. If biomass is cultivated on underutilized or unused agricultural land, this share could increase to 25% for Ukraine. The use of biomass from sorghum and aster family crops as fuel represents a significant step toward the country's energy independence, which is especially relevant in the current context. Moreover, the combustion of biomass or the use of its processed products (such as alcohol or biogas) is entirely environmentally friendly. Given the consequences of the Russian Federation's military aggression, the prospects for the biofuel and bioenergy equipment market are expected to grow, along with the chances for successful implementation of alternative energy sources [1].

Currently, sweet (fodder) sorghum is mainly cultivated for silage and green forage. Including the grain yield, ethanol output per hectare significantly increases and can reach 7,000 liters or more per year. Additionally, sweet sorghum is better suited for mechanization of cultivation and seed reproduction processes.

Another aspect of addressing the competition between food and bioenergy production is that, unlike cereal crops, Jerusalem artichoke grows successfully on low-yielding and marginal lands, which are increasingly viewed as a valuable reserve for expanding the area under energy crops [2].

Therefore, an important strategy to enhance Ukraine's energy security – especially in rural areas – is the development of local energy systems based on the use of biomass from phytotechnical energy crops as an alternative energy source.

References

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