

ECONOMIC FEASIBILITY OF GROWING MISCANTHUS IN UKRAINE

У статті подана інформація про сільськогосподарську культуру міскантус, витрати та окупність його вирощування, а також значення міскантусу як сировина та енергетична культура.

Ключові слова: рентабельність вирощування, біомаса, виробничі витрати, промислова плантація.

The article provides information about the miscanthus crop, the costs and payback of its cultivation, as well as the importance of miscanthus as a raw material and energy crop.

Keywords: profitability of cultivation, biomass, production costs, industrial plantation.

Miscanthus is a perennial herbaceous plant from the family of cereals. Miscanthus is a highly efficient, environmentally friendly crop: after four years of cultivation, it accumulates 15-20 tons of underground biomass, which is equivalent to 7,2-9,2 tons/ha of carbon. The duration of plantation use is about 20 years, and commercial cultivation is 15 years. Low operating costs for cultivation open up wide possibilities for using this crop for the production of solid fuels [1].

Miscanthus is an agricultural crop that can be grown on both large and small areas of soil. There are many examples of growing miscanthus on homestead plots. For several years, Cherkasy resident Valentyn Lugovsky has been growing giant grass for heating one of the city's microdistricts. The yield reaches 65-70 t/ha at a humidity of 8-15%. 1 ton of fuel pellets from miscanthus is equivalent to 440 kg of crude oil, 820 kg of coal, 515 m³ of natural gas, 1,2 tons of wood or 420 kg of diesel fuel. The biomass yield is about 30 t – equivalent to about 15 thousand m³ of gas. According to the Cherkasy resident, about 5 thousand hectares of land are needed to heat the regional center with miscanthus [2].

According to the Bioenergy Association of Ukraine, the profitability of growing miscanthus is about 17%, while the same indicator for energy willow and poplar fluctuates within 11-12%. Profitability can be increased if a state investment program to support the cultivation of bioenergy crops is launched in Ukraine. Such support can be implemented by providing subsidies or reducing taxes on their cultivation. The practice implemented in the EU is also interesting. According to the requirements of the EU's common agricultural policy, all farmers who own more than 15 hectares of arable land must allocate at least 5% of the area - such as buffer strips, landscape elements, land for forest plantations and others – for growing perennial energy crops, without using pesticides and chemical fertilizers, or reduce their use to a minimum [3].

Despite the energy performance of the crop, the main factor in making a decision about its cultivation is the cost of production and the payback of industrial miscanthus plantations. Ukrainian miscanthus producers can be counted on the fingers and there are reasons for this. The first reason is the rather large amount of investment that needs to be made at the start. The average price of 1 hectare of industrial plantation (17,000 plants per hectare) is somewhere around 130,000 UAH, about 80% for planting material, the rest for mechanization, technology, labor and diesel fuel. Miscanthus is propagated vegetatively – by rhizomes. For example in 2020-2026 miscanthus planting material costs about 9-11 UAH per rhizome, 16-17 thousand rhizomes are required per hectare, plus it is worth considering logistics and customs clearance. Also, if you plan an area under the crop of more than 5 hectares, it is worth purchasing a specific planter. Its estimated price is €50 thousand. In addition, the payback of a miscanthus plantation will be only in the third year after its establishment, and only in the fifth year can a net profit be obtained [4].

The second reason is the difficulty of obtaining miscanthus planting material and storing it. Miscanthus rhizomes are first dug up and cut, which takes time. And the window between harvesting and planting is small. More importantly, storing the rhizomes so that they do not spoil is another challenge. The temperature in the storage must be constantly maintained at 1°C. At high humidity and temperatures above 1°C, rhizomes lose germination energy and germination decreases, rhizomes begin to rot, and rotten rhizomes are not capable of germination, so their further use is a waste of time and resources [4].

After analyzing the reference material on growing miscanthus, we can draw a conclusion about its economic feasibility. Despite the slow payback of the crop in the short term and possible risks, its cultivation is promising and has agricultural potential, provided that a small plantation is established with a gradual increase in area, which will yield a harvest for 20-25 years.

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SOCIAL RESPONSIBILITY OF BUSINESS DURING THE PERIOD OF NATIONAL RECOVERY

У тезах досліджено роль соціальної відповідальності бізнесу в умовах національного відновлення. Обґрунтовано, що в період післявоєнної трансформації економіки підприємства виступають не лише як суб'єкти господарювання, а й як активні учасники соціально-економічних процесів. Визначено ключові напрями реалізації корпоративної соціальної відповідальності, зокрема забезпечення зайнятості населення, участь у відбудові інфраструктури, розвиток людського капіталу та впровадження екологічно орієнтованих підходів.

Ключові слова: соціальна відповідальність бізнесу, корпоративна соціальна відповідальність, національне відновлення, сталий розвиток, людський капітал, інфраструктура, державне управління, економічна стабілізація.

The theses examine the role of corporate social responsibility in the context of national recovery. It is substantiated that during the period of post-war economic transformation, enterprises function not only as economic entities but also as active participants in socio-economic processes. The key directions for the implementation of corporate social responsibility are identified, including employment provision, participation in infrastructure reconstruction, human capital development, and the adoption of environmentally oriented approaches.

Keywords: corporate social responsibility, social responsibility of business, national recovery, sustainable development, human capital, infrastructure, public administration, economic stabilization.