

POPLAR BIOMASS PRODUCTION IN TEMPERATE-CONTINENTAL PLAIN CONDITIONS

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ABSTRACT

Biomass is the first form of energy used by man at the same time with the discovery of fire, means all the products of animal and vegetable origin used in present in the production of energy. Actually, the biomass approximately half (44-65 %) of the total renewable energy sources used in the EU, and occupies a third place as a primary energy source in the world, after coal and oil. At the same time represents a sustainable alternative to reduce carbon emissions.

The experimental territory is located in the middle of the low plain area of the Western Plain in Romania at an altitude of 80-90 meters. The climate is temperate-continental, with Mediterranean and oceanic influences, the average annual temperatures are 10-11 degrees Celsius. Precipitation shows some particularities, but on average the average annual amounts recorded are 500-600 mm.

The purpose of the present study, the production potential of a poplar energy crop located in the low plain in Romania. A pure culture was analyzed in terms of biomass production over a 6-year production cycle under optimal culture conditions. Development parameters such as survival rate and plant height were analyzed, as well as production parameters such as dry matter content and biomass production. Also, a culture technology characterized by low energy consumption was used, i.e. without the application of irrigation, or fertilization.

Finally, the study wants to convince that the energy poplar culture is particularly productive in a 6-year production cycle and also constitutes a very good alternative to using agricultural land unsuitable for other crops.

Keywords: biomass, poplar production, renewable energy

INTRODUCTION

Renewable energy is that energy produced from renewable resources replenished naturally on a human scale, these include sources such as: sunlight, wind, rain, tides, waves, geothermal heat, etc. [1]. It is considered that the largest source of energy from renewable sources is biomass. As the development of society is done with equal energy consumption, man decides that he needs more energy from renewable sources, which is why the importance of biomass also increases.

Initially, biomass was seen as a use of agricultural or forestry waste [1; 2]. Starting from the consideration that biomass is the most abundant renewable resource on the planet,