Differentiated Fertilization Technologies in Nurseries for Common Oak Culture

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Abstract. The aim of the present paper is to present different fertilization technologies applied in a common oak nursery and their results regarding the growth vigor assessed using the tree diameters. The present research concluded that the growth and nutrient supply response of juveniles is positive regardless the type of fertilization complex.

Keywords: oak nurseries; nutrient reserve; vigor; fertilization

Introduction. Seedling growth being very intensive reduce the soil fertility in nurseries, therefore it should apply a complex system of preventive measures and of improvement of soil fertility (Florescu, 1999; Holonec, 2007; Oroian, 2004). Also it is important to know that common oak (*Quercus petraea*) sapling reacts strongly to the degree of lighting and fertility of the soil. By applying fertilizer can be obtained high stable and quality yields, and can be improved the soil fertility (Oroian, 2002).

Aims and objectives. The aim of the present paper is to present different fertilization technologies applied in a common oak nursery and their results regarding the growth vigor assessed using the tree diameters.

Materials and methods. The study was conducted in Mihai Viteazu nursery, Romania on oak (*Quercus petraea*) sapling in the period 2008-2009.

As fertilizers were used 12 different combinations as follows: N<sub>40</sub>P<sub>40</sub>K<sub>40</sub>, N<sub>60</sub>P<sub>60</sub>K<sub>60</sub>, N<sub>60</sub>P<sub>60</sub> K<sub>60</sub>. The experiments had mono-factorial character.

Results and Discussion. In the period of maximum vegetation the seedlings were measured for diameter and height. Each variant was compared with the control version (Figs. 1 and 2).

![Graph showing the influence of NPK dosis on the diameter of the common oak, 2008](image)

Fig 1. The influence of the NPK dosis on the diameter of the common oak, 2008

\[ Y = 5.485 + 0.006X - 0.184X^2 \]
\[ R = 0.506, R^2 = 0.256 \]
The results show that, for each variant, the height and diameter of the seedlings are higher than of the control version. However there are observed differences among the types of fertilization. The correlation coefficients are moderate, with values of $R = 0.508$ in 2008 and $R = 0.473$, representative in shares of 25.60% for 2008, and 22.30% for 2009 (Figs. 1 and 2).

**Conclusion** The present research on maximizing the nutrient reserve to increase the growth vigor of juveniles of common oak (*Quercus petraea*) to be transplanted to afforestation, concluded the growth and nutrient supply response of juveniles is positive regardless the type of fertilization complex.

**REFERENCES**