

## EFFECT OF DRIP IRRIGATION RATE ON GRAPE YIELD AND QUALITY OF TABLE-GRAPEVINE CULTIVAR “ITALIA”

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### Abstract

The study on the effects of drip irrigation rate on yield and quality of table-grapevine cultivar “Italia” was conducted in Prush, Tirana, in the central part of Albania, in a fifteen years old vineyard, with a total area of 0.6 ha, under the ownership of Shkëlzen Malliku. The experimental plot was situated in a uniform flat land with a sloping gradient of 3-4%, 145 m elevation, and a planting density of 1100 vines ha<sup>-1</sup> (3 m x 3 m). Vines were trained according to Tent system, positioned at 200 cm above the ground. Drip irrigation system was constructed since 2000. A randomized complete block design (RCBD) with six treatments (drip irrigation rates) 0, 330, 495, 660, 825, and 990 m<sup>3</sup> irrigation water ha<sup>-1</sup> and three replications, with a plot size of 10 vines for each treatment in each replication was used. There were performed six drip irrigations, starting from June 25 up to August 15, and repeated every 10 days. Except irrigation, the other cultural practices were the same as for the other part of the vineyard. Results showed that DIR significantly affected the vegetative and productive characters of table-grapevine cultivar “Italia”. DIR significantly affected grape yield, single bunch weight, berries weight and size, skin color, total soluble solids and firmness, parameters linked with grape storage and market. Grape yield of control was 3.3-5.9 times lower than irrigated treatments. The highest results were obtained in V4 (660 m<sup>3</sup> irrigation water ha<sup>-1</sup>) and this rate can be recommended as optimum drip irrigation rate of this cultivar. There was observed that production from control did not fulfill the product quality standards and market and consumers requirements, because of small bunch weight (246 g) and small berry weight (6.8 g). Use of low drip irrigation rate (330 m<sup>3</sup> irrigation water ha<sup>-1</sup>) significantly increased the grape yield compared to control, but it was insufficient because mean yield of “Italia” table grape cultivar must be over 250 quintals ha<sup>-1</sup> to be efficient. The highest grape yield (315.6 quintals ha<sup>-1</sup>) and higher quality characters were observed for the drip irrigation rate of 660 m<sup>3</sup> irrigation water ha<sup>-1</sup>.

**Keywords:** *drip irrigation rate, “Italia” table-grape cultivar, yield, water use efficiency*