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THE INFLUENCE OF GRAPEVINE CANOPY MANAGEMENT ON VINEYARD PRODUCTIVITY IN STEEP ENVIRONMENTS

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To study the response of grapes to canopy management under the Steppe environment and to elaborate effective agrotechnics for non-irrigated cultivation.

The research was conducted at the NSC „V.Ye. Tairov IV&W" experimental plots from 2016 to 2020. Different horizontal vine cordon positions were tested in the experimental vineyard of wine grape cultivar `Aromatnyi`, with heights ranging from 0.4 m to 0.8 m, 1.2 m, and 1.6 m.

The weight of yield per vine (kg/vine) was determined during the grape harvest. The yield of the vineyard (t/ha) was calculated. Manual labor costs including grape harvest (man-hours) per hectare of vineyard and per unit of yield depending on variants of canopy management were calculated.

The highest yield was established at the position of the vine cordon at a height of 1.2 m with free-growing of shoots, and the minimum – at a height of 1.6 m with downward shoot positioning. The yield weight, on average for five years of research, at a cordon height of 1.2 m is 11.6 t/ha. Reducing the cordon height to 0.8 m reduced the productivity of vines by 13.8%, to 0.4 m – by 25.9%. A reduction of yield weight by 42.2% was observed when cordon height was increased to 1.6 m.

The total manual labor costs, including harvesting, can vary from 432 to 635 man-hours per production cycle, depending on vineyard canopy management.

The minimum values of this indicator and, accordingly, a high level of labor productivity is established when shoots are grown on cordons located at a height of 1.2 m. Other canopy management systems studied increase manual labor costs per unit yield by 12.9% (cordon height 0.8 m), by 18.5% (cordon height 1.6 m), and by 37.0% (cordon height 0.4 m).

Canopy management is the practice of taking measures that have a significant impact on the vineyard's productivity. Grapevine cultivation on cordons located at a height of 1.2 meters is an effective method for semi-arid environments in the Steppe. The indicator of manual labor costs per unit mass of yield indicates that this system is highly productive in non-irrigated vineyards and technologically efficient.

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