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INFLUENCE OF MODIFYING CANOPY MICROCLIMATE ON GRAPEVINES GROWTH AND POWDERY MILDEW INCIDENCE.

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ABSTRACT

This trial was carried out at grapevine vineyards located at Cairo/Alexandria desert road, Egypt during the two successive seasons 2012 and 2013. Two levels of defoliation and line spacing were used to determine the effect of canopy microclimatic factors on some growth parameters and disease incidence of powdery mildew caused by the fungus *Erysiphe necator*. Flame seedless grapevines (10 - years old) were used in this investigation. Infection percentage was determined in randomized samples of clusters collected after targets implementation. Obtained results indicate that wide line spacing (2x3 m.) plus removing four leaves (two basal before cluster + two after cluster) increased average of leaf area, total surface area of leaves / vine (m²), shoot length (cm). It also induced significant increments in yield / vine, and affected significantly on total soluble solids, total soluble solids / acid ratio and anthocyanin content in berry skin under infection conditions. On the other hand, acidity and number of infected berries /cluster were decreased comparing with the other treatments. Balance between canopy density and air temperature was ensured by modifying canopy microclimates. At the same time, improving canopy microclimates was allowed decreasing of powdery mildew infection due to more light penetration which also enhancing an appropriate berry quality and coloration. During periods of extended heat (>32°C) the reproductive rate of *Erysiphe necator* was slowed, germination and infection efficiency was decreased, and virtually any control program works effectively .

Key words: Defoliation, Grapevine, microclimate, powdery mildew (*Erysiphe necator*)