Influence of Different Application Methods of Gibberellic acid (GA_3) on Quality and Yield of Grapes (*Vitis vinifera L.*)

Sangeetha.J.,Sivachandiran.S.,Selvaskanthan.S.

Abstract: Israel blue is the seeded grape variety commonly cultivated by Jaffna farmers. Farmers face problems in marketing of grapes and obtaining lower prices due its poor quality. Gibberellic acid (GA_3) is commonly used to improve quality of grape berries globally. A proper method of application has to be recommended for maximum efficiency of GA_3 application. Therefore a study was carried out in farmer fields to study the effect of different methods of applications such as spraying, plunging and combination of spraying and plunging on improvement of berries' quality without changing the concentration of gibberellic acid package. The experiment design was carried out in randomized complete block design with six replicates at three AI divisions Thellipalai, Sandilipay and Urumpirai in Jaffna district. The grape bunches were collected when all the berries in the bunch were fully ripen and physical, chemical and sensory parameters were recorded. The data were subjected to analysis of variance and means of the different treatments were compared using least significant difference test. The analyses were performed using SAS statistical packages at $\alpha = 0.05$. Berries received GA_3 by spraying with plunging method recorded the highest berry weight, berry diameter, heaviest bunches and highest yield per vine compare to other treatments and control. Gibberellic acid treated berries recorded high total soluble solids, pH and lower titrable acidity compare to control. Based on sensory characters, gibberellic acid treated by spraying or by spraying with plunging scored high for taste, aroma, flavour and berry color. Both spraying and spraying along with plunging in different growing stage improved quality of Israel blue berry significantly compare to other treatments. Based on the economic analysis and feasibility of adaptation by farmers, spraying method is recommended as suitable method for the application of GA3 to improve the berry quality and yield of Israel blue cultivar grapes in Jaffna district.