



Yakov Henig

Gat Fertilizers agronomist

Grapevine (*Vitis vinifera*) is a very important agricultural crop worldwide, and particularly in Israel. Their cultivation requires a cold season including leaf fall and dormancy. It also requires a warmer season in which the vine awakens and bears fruit.

The grapevine needs relatively low chilling requirements, it can be cultivated in a variety of zones with ripening dates spread over a long period during the season. Besides, over the past decades, early table varieties have been genetically bred to complete the seasonal growing cycle to ripening within just four months from bud break to harvest and can be marketed very early.

Furthermore, growing table grapes in greenhouses is a common practice in relatively warm areas, enabling an earlier grape cultivation period. The vines are awakened through early pruning and chemical stimulant spray so that the winter serves as a growth period. In this way, the vine grows in non-optimal conditions of cold and even frost at night, and sometimes overheated days in the greenhouse.

While testing supplementary products for standard fertilization, Gat Fertilizers markets a variety of bio-stimulants for plant enrichment. One of them is BioHumigat, a product characterized by quality humic acid content. This product is known for its capabilities to improve soil structure, help the plant absorb nutrients, and may induce defense mechanisms against stresses. For this reason, we decided to test the effect of BioHumigat on table grapes in the greenhouse.

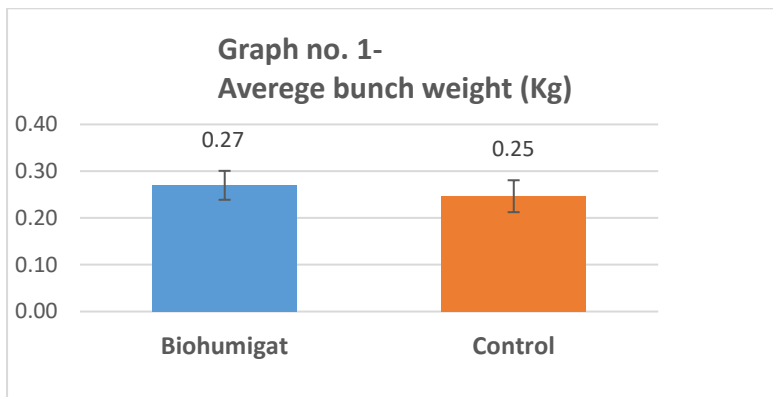
The experiment took place during the 2017-2018 winter, located in the higher Jordan Rift - Israel. It was conducted in a greenhouse vineyard, using a random block design- 4 trials and 4 control rows. The treatment was continuously fertilized with NPK + BioHumigat by a dosimeter. The measures studied included Leaf Area Index (LAI), number of clusters, yield weight, average cluster weight, grape weight, and sugar level (Brix). All the vineyard treatments were carried out standardly by the farmer without our interference, including the harvest. Grapes were harvested selectively at three different times, to ensure marketable quality fruit in terms of grape size and appropriate sugar level (Brix>14.5).

Results:

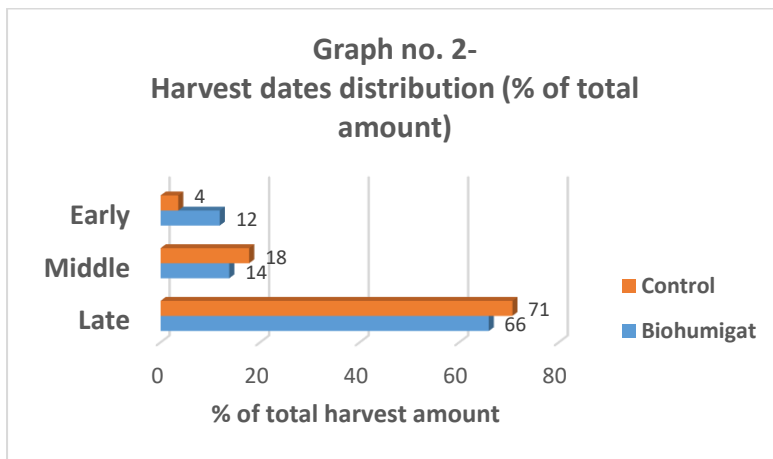




BioHumigat treatment consistently showed a denser foliage over 5 LAI measurements throughout the season, i.e., the plants were more vigor with this treatment. In terms of harvest parameters - the number of clusters, overall weight, and sugar level did not significantly differ between the treatment and control (non-significant). the grape weight was consistently Higher with BioHumigat for all 3 harvests, and the cluster weight (Graph 1) was significantly greater ($p < 0.1$), so that each cluster was larger and better suited for marketing as premium fruit.



Additionally, the distribution between harvest dates differed (Graph 2). At the first and earliest of the 3 harvests, the yield from the BioHumigat treated grapes was three times fold greater. Such an early harvest is generally characterized by a higher price, sometimes than the later harvest.



To summarize - in this test, we witnessed impressively, and interesting results for BioHumigat treatment of greenhouse table grapes, in terms of fruit size and the early harvest. As a result, the experiment is planned to continue in the following years as well.

