THE EFFECTS OF HUMIC ACID AND PHOSPHORIC ACID ON GRAFTED HASS AVOCADO ON MEXICAN SEEDLING ROOTSTOCKS

A-161

Phanuphong Rengrudkij (1) and Dr. Gregory J. Partida (2).

Horticulture/Plant and Soil Sciences Department. Califronia State Polytechnic University, Pomona, California.

An investigation was conducted to determine the effects of 12 % humic acid (HA) and 29 % phosphorous acids (PA) and on the plant growth of grafted Hass avocado on Mexican seedling rootstocks over a 7 months period (May 2002-November 2002). The addition of a combination of HA+PA indicated the highest increase in shoot height by 36.2 % and shoot diameter by 21.2% over the untreated trees. Humic acid treated trees increased by 28% in shoot height and 19.2% in shoot diameter. Phosphoric acid treated trees increased by 21.7% in shoot height and 15.5% in shoot diameter over untreated trees at $p<0.01$ levels. The combination of HA+PA and HA alone significantly increased tree biomass and relative growth rate (RGR) in comparing to untreated trees. There was no significant difference between the PA treated trees and the untreated trees.

Iron uptake by the plants was also effected by the addition of HA+PA and HA. Leaf analysis showed a high level of nitrogen and a slight increase in potassium in the tree treated with HA and HA+PA. However, untreated trees and PA treated trees did not have any effect in N and K uptake. The application of HA also increased Ca and Fe.

This study showed that the application of humic acid has a positive influence in promoting overall tree vigor. Treated trees were larger and the root system was better developed than the untreated trees.

(1.) In Partial Fulfillment of the Requirements for the Degree Master of Science In Plant Science. (2) Professor in the Horticulture/Plant and Soil Sciences Department, College of Agriculture, California State Polytechnic University, Pomona, California.