

P-22 (151)**USE OF PLANT GROWTH REGULATORS IN THE ESTABLISHMENT OF DATE PALM ORCHARDS WITH PLANTS PRODUCED BY TISSUE CULTURE**

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Tissue culture is a popular method for date palm (*Phoenix dactylifera*) propagation used in date-producing countries worldwide. Tissue culture produced plants are clones and typically healthy plants for the establishment of new orchards. Exogenous supply of phytohormones through the media is an essential factor in the production of young date palms by tissue culture. Once transplanted to the field, phytohormones as commercial plant growth regulators (PGRs) are typically not applied until the plants are trees at full bearing capacity. At this stage, PGRs can be efficacious for increasing fruit set and size. In this research, we tested the efficacy of foliar- and soil-applied PGRs to increase the growth of 30 tissue culture-propagated date palms transplanted to a new orchard at the University of California-Riverside Coachella Valley Agricultural Research Station, Oasis, CA. The PGR treatments were initiated 2 weeks after transplanting and applied every 2 weeks for 20 weeks in Year 1 and monthly for 6 months during spring and summer in Years 2 and 3. Treatments included: (i) soil-applied 6-benzyladenine (6-BA) (1 mg/L); (ii) foliar-applied 6-BA (25 mg/L); (iii) foliar-applied gibberellic acid (GA₃) (25 mg/L); (iv) soil-applied adenosine (ADO) (100 mg/L); (v) foliar-applied ADO (25 mg/L); and (vi) untreated control. Plants treated with foliar-applied GA₃ had longer leaves than all other treatments starting 2 months after treatment and persisting for 1 year. Plants treated with foliar-applied 6-BA had a significantly greater basal circumference after 16 months of treatment that was sustained for over 1 year. Number of off-shoots produced per plant was greater in plants treated with foliar-applied GA₃ or foliar-applied 6-BA after 16 months of treatment, with the effect persisting for over 1 year. Measurements are continuing. Foliar application of GA₃ and 6-BA to tissue culture-produced date palms starting two weeks after transplanting improved their growth rate and establishment.

Keywords: Adenosine, 6-benzyladenine, gibberellic acid, leaf length, off-shoot number, trunk circumference