AN INVESTIGATION INTO THE MODE OF ACTION OF ALAR (SUCCINIC ACID 2,2-DIMETHYL HYDRAZIDE) ON APPLE

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A C K N O W L E D G E M E N T S

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Application of the growth retardant succinic acid 2,2-dimethyl hydrazide as a foliar spray to seven year old Gravenstein apple trees at full bloom and eleven days after, reduced extension growth in comparison to that on untreated trees. This retardation was characterized by a reduction in internode length and node number without formative effects on leaf area or observable leaf chlorophyll. Shoot and petiole dry weight was decreased with Alar treatment; leaf dry weight increased. Fruit size and weight was increased at 1000 and 2000 ppm Alar treatment; the converse relationship occurred at 4000 ppm Alar. Alar treatment improved apple keeping quality and enhanced fruit skin colouration.

Acidic gibberellin-like substances extracted from shoot apices decreased with Alar treatment and this reduction was accompanied by an increase in 'abnormal' gibberellin-like substances. Acidic, neutral, and basic auxins extracted from shoot apices also decreased with Alar treatment although evidence was not as conclusive as that shown by gibberellin-like substances.

A study of the interaction between Alar, auxin (IAA) and gibberellin (GA_3) on Avena 1st internode sections was used as the basis for a suggested mode of action of Alar on apple extension growth.