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

A thesis submitted in partial fulfilment of the requirements
for the degree of Master of Horticultural Science

at
Massey University

MURRAY EDWIN HOPPING

1968

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

The author wishes to thank his supervisor, Professor J.A. Veale for his continued interest and assistance throughout this study. Thanks are also due to my wife for typing this thesis; to the Central Photography Unit; to the Massey Library Staff; to Mr D.B. Thomas for laboratory assistance; and to all others who have given help when needed.

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A B S T R A C T

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.