

not recommended at this time in Illinois due to lack of a significant market for the fruit.³

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The Response of Bartlett Pear to Certain Growth Regulants³

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The effects of plant growth regulators in fruit trees have been widely studied. Among temperate fruit crops by and large, apple has been the most common crop for such investigations. Study of growth behaviour of fruit trees is important from the management point of view, also because of its direct or indirect relationship with floral initiation and fruiting. Comparatively little work has been done to evaluate the growth effects of plant regulators in pear (3). Therefore, a study was undertaken on pear to assess the effects of gibberellic acid (GA₃), 6 benzylamino purine (BA) and succinic acid 2-2-dimethylhydrazide (Daminozide).

The pear cultivar Bartlett, probably the most important pear cultivar worldwide, was taken for this study. Two-year old trees in pots were taken into the greenhouse in early winter. Soon after the resumption of growth two concentrations of each plant growth regulator were applied to plants as a spray (Table 1). As a wetting agent Tween 20 at 0.1 percent was used. For the sake of comparison a control treatment was also included by spraying 0.1 percent Tween-20.

Four representative shoots in each treatment were tagged before spraying for recording observations. Growth was measured in terms of length of terminal shoot, number of leaves per shoot and thickness of shoot, 30 days after spraying.

Data on the effects of different treatments are presented in Table 1. Gibberellic acid, particularly at 100 ppm, stimulated linear growth of shoot and also increased the number of leaves. However, the thickness of shoot was not significantly affected by GA₃. This kind of response of pear trees to GA₃ is in line with earlier reports on pear and other crops (1, 2, 3, 6).

Growth was unaffected by BA at both 10 and 100 ppm levels. Some stimulating effects of BA on growth have been reported by earlier workers in apple (4). It is quite likely that BA is effective only at higher concentrations than used in this experiment.

Daminozide sprays significantly retarded length of shoot and to a certain extent the number of leaves especially at higher concentration. However, the girth of shoot was greater in treated plants than in the control. Strong

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³Thanks are due to the Royal Society and Nuffield Foundation, London, England, for giving financial support to the Junior author.

Table 1. Effects of GA₃, BA and Daminozide on Growth of Pear*.

Treatment	Length of shoot (cm)	Number of leaves	Thickness of shoot (mm)
Control	14.4 ± 2.50†		4.4 ± 0.09†
GA ₃ 10 ppm	16.2 ± 2.56		4.3 ± 0.12
GA ₃ 100 ppm	24.5 ± 2.83		4.3 ± 0.17
BA 10 ppm	14.2 ± 1.98		4.4 ± 0.08
BA 100 ppm	14.7 ± 1.88		4.4 ± 0.09
Daminozide	12.5 ± 1.30		5.9 ± 0.22
500 ppm			
Daminozide	12.2 ± 1.20	10.75 ± 0.95	6.0 ± 0.21
1000 ppm			

*Thirty days after spraying.

†Mean and standard deviation.

growth retardation effects of daminozide have also been reported by earlier workers (5, 7, 8).

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Floral Initiation in Young Trees of Golden Delicious Apple and 'Bartlett' Pear Under Greenhouse Conditions¹

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Apple and pear trees bear two types of shoots, namely, short and long, a study of which is important from the point of view of floral initiation (3). The short shoots (spurs or brachyblasts) grow for 3-5 weeks after bud burst solely by extension of internodes already formed in the resting bud, whereas long shoots (mesoblats) are those in which shoot apex during growth initiates new internodes and leaf primordia.

It is well known that before a plant comes into the reproductive phase, it has to complete a period of juvenility (1, 2, 4, 5, 6, 7, 8). The juvenile period varies from crop to crop. In apple and pear the juvenile stage persists for several years.

An interesting case of flowering was observed by us in two-year old plants of apple cv Golden Delicious and pear cv Bartlett. Dormant trees were taken into greenhouses in early February.

¹Work partly supported by the Royal Society and Nuffield Foundation, London, England.

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