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EFFECT OF AUXIN TRANSPORT INHIBITORS ON FRUIT GROWTH AND FRUIT SET OF 'DELICIOUS' AND 'GOLDEN DELICIOUS' APPLES

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It has been proposed that auxins are intimately involved in the process of fruit abscission and they may play a central role in the promotion of abscission caused by chemical thinners applied to apples. Three auxin transport inhibitors were selected: 2,3,5-triiodobenzoic acid (TIBA), N-1-naphthphthalamic acid (NPA), and 1-pyrenoylbenzoic acid (PBA). All inhibitors were incorporated into lanolin paste at a concentration of 250 mg.l⁻¹ and applied to the pedicels of fruit when fruit were 9-14 mm in diameter. All inhibitors caused fruit abscission but it required 2 to 3 weeks for fruit to actually drop. Fruit treated with a chemical thinner frequently slow growth and stop growing within 7 to 10 days of application. Fruit that did drop as a result of auxin inhibitor application frequently continued to grow, but at a reduced rate for some time after treatment. Results will be discussed in relation to the involvement of auxins in apple fruit abscission.