

## A Study of the Factors Affecting Cutting Propagation of Feijoa (*Acca sellowiana*) Trees<sup>®</sup>

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### INTRODUCTION

The feijoa [*Acca sellowiana* (syn. *Feijoa sellowiana*)] is an evergreen shrub originating from South America and belonging to the Myrtaceae. Although feijoas are widely cultivated in New Zealand as garden fruit trees, they have not been popular in Japan yet. Cultivation problems include slow growth and propagation difficulties. In this study, we investigated to identify the factors affecting the efficiency of cutting propagation.

### MATERIALS AND METHODS

**Cutting Propagation Method.** Scions were taken from apical and basal part of feijoa trees grown at the Agricultural and Forestry Research Center, University of Tsukuba. Each three-node cutting was treated with 2000 ppm auxin (IBA) for 5 sec and placed in a greenhouse.

**Measurement of Auxin.** Extracts from leaves with 80% ethanol was fractionated into ethylacetate-soluble fraction and then the auxin content was measured by HPLC.

**Bioassay.** Hypocotyles of azuki beans (*Phaseolus angularis*) were used for the bioassay to estimate rooting activities. The hypocotyls were soaked in the test solution containing the *Feijoa* extract for 1 day and then moved into water for 6 days.

### RESULTS AND DISCUSSION

Rooting rate of scions from basal cuttings was clearly higher than from apical cuttings. It is possible that juvenility is important in the rooting ability of feijoa. Difference in auxin content between apical and basal cuttings could not be detected in this experiment suggesting other factors are affecting rooting ability. From the bioassay result both acetone and water-soluble fractions inhibited at high concentration while promoting at low concentrations on adventitious root formation, irrespective of scions taken from different cutting types. It was suggested that synergistic rooting factors with IBA existed in the leaf. By contrast, the extract from apical cuttings, in particular organic phase of acetone fraction, reduced the rooting whereas no evidence occurred for those in basal part. Taken together, the difference of rooting ability between apical and basal cuttings may be caused by rooting inhibitors in feijoa trees.