

Effects of Nitrogen Fertilizer on Soil Properties  
and Growth Characteristics of waxapple<sup>1</sup>

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Abstract

This experiment were carried out from 1984 to 1987 in a slate alluvial soil for studying the effect of nitrogen application on soil fertility and growth of Wax-apple. The total amount of nitrogen applied during blooming and bearing fruit period to each tree in an annually basis were 0, 0.8, 1.6, 3.2, 6.4 kg N, respectively. The results showed that nitrogen demand for each tree of 4 years old was 800 kg N/year. When nitrogen fertilizer applied was greater than 1.6 kg N/tree growth characteristics such as tree size, development of new shoots, leaf size, fruit size, yield and taste decreased ; however, the rate of off season flowers and fruit sugar content increased at that application. Soil data regression indicated that at least 69 ug/g of NH<sub>4</sub>-N were maintained in the surface soil (10cm) for treatment of 3.2 kg N/tree, which trees also showed excess N absorption. The period and the amount of shoot development would be changed by adjusting the time and interval of nitrogen application, which might also induce flower initiation. Tree growth were recovered after nitrogen application was completely ceased for 3-5 months dependent on seasons. Average soil pH were 5.8, 5.4, 5.3, 4.9, 4.5 for each treatments, respectively. Available soil Ca and Mg content were reduced due to the application of nitrogen fertilizer; however, available soil Fe and Mg content increase. It was estimated that 10 kg silica slag was recommended with the application of 0.8 kg N fertilizer to avoid soil acidification .

**Keywords:** Wax-apple, Nitrogen fertilizer, Shoot growth, Off-season flowers, Fruit quality, Soil fertility

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1. The financial support from Council of Agriculture, Executive Yuan, and the field and laboratory assistances from Mr. C.R. Chung and Ms. H.R. Chung were lightly appreciated.

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