

Jatupong Fajarern 2009: Annual Changes of Leaf Nutrient Concentrations in 'Fuyu' and 'P2' Persimmons. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Krisana Krisanapook, D.Agr. 73 pages.

Annual changes of nitrogen (N), phosphorus (P), potassium (K), calcium (Ca) and boron (B) concentrations in 'Fuyu' and 'P2' persimmon leaves from 19-20 years old trees (already beared fruits) at Angkang Royal Research station and Inthanon Royal Research station and from 'P2' persimmon leaves from 1-2 years old trees (non bearing fruits) at Inthanon Royal Research station were studied. Leaves at age of 1 month and 4-7 months were sampled in year 2005 and leaves at age of 3-7 months were sampled in year 2006. Collected leaves were the 5<sup>th</sup> leaf from the shoot tips. Soil samples from both sites were also analyzed. In averaged (year 2005-2006) it was found that soil had pH range from 4.06 to 5.47, low electrical conductivity, moderate to high organic matter, moderate total N, very high available P, very high exchangeable K and Ca and high B. Leaf N, P and K concentrations of both cultivars and 'P2' (non bearing fruits) decreased with leaf age, in contrast to Ca and B that increased with leaf age. Concentrations of five elements were relatively stable when leaves were 5-6 months old (July – August). Therefore, leaf age of 5-6 months old is the appropriate sample for leaf nutrient analysis. At this period leaf N, P, K, Ca and B concentrations were between 2.42-2.54 %, 0.25-0.28 %, 1.40-1.59 %, 1.47-1.93 % and 33.09-39.81 mg/kg, respectively in 'Fuyu' and were between 2.25-2.36 %, 0.19-0.21 %, 1.38-1.61 %, 1.09-1.39 % and 21.57-24.40 mg/kg, respectively in 'P2' at Angkang Royal Research Station. At Inthanon Royal Research Station, leaf N, P, K, Ca and B concentrations were between 2.31-2.47 %, 0.26-0.29 %, 1.25-1.52 %, 1.06-1.38 % and 29.78-39.02 mg/kg, respectively in 'Fuyu'. In 'P2' (already beared fruits) leaf N, P, K, Ca and B concentrations were between 2.24-2.36 %, 0.19-0.22 %, 1.34-1.63 %, 1.02-1.27 % and 23.22-28.33 mg/kg, respectively and were between 2.18-2.38 %, 0.21-0.23 %, 1.30-1.50 %, 1.53-1.82 % and 49.25-56.07 mg/kg, respectively in 'P2' (non bearing fruits). From these studies, the optimum leaf N, P, K, Ca and B concentration range of healthy bearing persimmon trees grown in Thailand are proposed as followed: 2.38-2.49 %, 0.26-0.28 %, 1.35-1.48 %, 1.31-1.61 % and 32.58-38.27 mg/kg, respectively for 'Fuyu' and 2.26-2.34 %, 0.19-0.21 %, 1.39-1.58 %, 1.09-1.28 % and 22.89-25.87 mg/kg, respectively for 'P2'. It shows that nutrient concentrations in persimmon leaves in Thailand have similar range as leaf standard nutrient concentrations reported in other countries.

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Thesis Advisor's signature