Chapter 1

Introduction

Lychee is an economically important subtropical fruit of Thailand. In 1999, the total planting area was 149,879 rai. and the total produce was about 61,018 ton. About 60% of fresh fruits were sold domestically. The quantity of fruit export was 12,496 ton with the value of 372.4 million Baht. Chiang Mai is the leading lychee planting area with total production of 52,635 followed by Chiangrai province with 41,107 rai. The most popular lychee varieties grown in the North was "Hong Huay" which occupied about 73.28 % of the total lychee production. On the other hand, "Kom" variety was the leading lychee in the western and central area (Department of Agricultural Extension, 1999).

Lychee has been introduced to most of the tropical and subtropical world which commercial industries have been developed in several countries (Taiwan, Thailand, Japan, South Africa and Australia). The major production problems have been irregular and low yields due to poor flowering and fruit set. Poor fruit set may be due to several factors, as well as water stress, and nutrient deficiency (Ghosh, 2001). Even if flushing is controlled, yield may be low because of poor fruit set, fruit retention or fruit development (Menzel, 1984). One of the major factors limiting fruit production in lychee is lack of a suitable nutrition program. Yield may be low because of excessive vegetative growth in winter following late or heavy N fertilization. The main reason for low yield is failure of flowering, other causes might be due to, weather, deficiencies of N and K and a lesser extent of B, Zn and Cu which would limit yield by restricting the set and subsequent development of fruit. Another possibility might be due to soil characteristics (pH, drainage or salinity) which would help to impair tree health. If soil is not enriched with nutrient it might indirectly reduce fruit production (Menzel and Simpson, 1987). Lychee required nutrients for growth, flowering and fruit setting. Sinai *et al.* (1999) reported that the application of higher level of micronutrient (0.8% zinc sulfate and 0.4% borax) increased fruit set per panicle and decreased fruit drop per panicle in compared with control.

In addition, to reduce vegetative flush and improve flowering, the levels of N should be reduced 1.75% and to 1.85 % prior to panicle emergence (Li *et al.* 2001). Plant supplied with high rates of N showed the increase of number and intensity of vegetative flushing and less flowering. The nutrition management will be useful to maintain plant health and encourage successful flowering and fruiting in lychee if the role of each nutrient on the different component of growth is well understood. Therefore, mineral content is very important information in order to understand the role of nutrient balance during flower and fruit development. Nutrient level in plant might be a good indicator to represent nutritional status of lychee orchard. In order to obtain this information, this study was conducted to analyse nutrient contents in lychee leaves and different soil types.

Objective

To evaluate the nutrient contents in the soil, leaves and fruits of lychee. These data can be used as basic information for the development and management of sustainable production of lychee.