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Effectiveness of Micro-Nutrient Fertilisation in Off-Season Longan Production in Northern Thailand

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Abstract

Longan (*Dimocarpus longan*, L.) is one of the most important fruit trees of northern Thailand. Most of the fruits are produced during the main season (January until July) and fresh marketed, while only a minor part is conserved. An increased production area has led to a massive decay of in-season longan prices. Therefore, more and more farmers shift to off-season production by chemically induced flowering during June or August, so that they can harvest in December or March, respectively, when longan prices are higher.

Most of the longan fields are in the low lands of the Ping River Basin or the lower foothills along the valley on soils with a poor nutritional status. This is especially true regarding the supply with micro nutrients, which for a long term have not been considered essential by local farmers. Nowadays, foliar application of micro-nutrient cocktails is practised by many farmers. However, most of them do not distinguish between on-season and off-season production. Micro nutrient cocktails are expensive and, therefore, need to be scheduled carefully to ensure effective uptake by the trees.

The aim of this study was to find out the differences between different phenological stages with respect to micro-nutrient supply and compare them between on- and off-season production. In cooperation with local farmers, ten longan orchards in the Provinces Chiang Mai and Lamphun, northern Thailand, have been surveyed. The orchards differed in frequency and intensity of micro-nutrient application. Fertiliser treatments of local farmers practice have been recorded. Soil samples were analysed on their nutritional status. Longan leaves have been analysed on B and Zn contents for the time periods of flowering, fruit development and after harvest.

It turned out that Zn deficiencies in the soil can be easily overcome by foliar application. The level of Zn content in the leaves decreases massively after harvest, while B remains on a constant level. B was found to be deficient in many orchards. It could only be overcome by frequent foliar application.

Keywords: Boron, foliar application, nutritional status, zinc