Abstract

Study of soil nutrients and mango leaves in which the mangoes produced brown jelly seed and lumpy from 10 farmers' orchards in the MokJam Royal Project Development Center, Mae Ai District, Chiang Mai Province and in the Phrabat Huai Tom Royal Project Development Center, Li District, Lamphun Province were investigated. This researchwas the guidelines for soil and nutrient management in order to reduce the loss from abnormal of mango fruit. That may be caused by nutrients deficiency.

Soil, leave and fruit were collected for analysis of soil properties and nutrient content in the soil, leaves and fruits, as well as studying the past fertilizer management of farmers. The results showed that, the soil in both mango growing areas were acidic, had low calcium content. Farmers did not have to improve the acid soil. As for soil management and fertilizer management of farmers in the past, farmers were not managing fertilizer properly. Some people did not use soil fertilizer and analyze the soil before adding fertilizer. During the development of mango fruits most farmers apply only foliar fertilizer. Another problem was the lack of water. Most orchards did not have water to supply mango during the drought, causing the yield to be more abnormal than the orchards with irrigation. For the concentration of nutrients in the leaves in both areas of the sample, the concentration of nitrogen and potassium in the leaves were at an appropriate level. But the concentration of calcium in the leaves was lower than the value. In which the amount of calcium in the leaves and in the fruit tended to be the same as the amount of calcium in the soil and water management of farmers. Moreover, with irrigation water management orchards had better calcium absorption than areas that rely on rainwater. As for the production products from Mr. Ekachai Boonruang's orchard from the Mok Jarm Royal Project Development Center and Mr. Santi Toon Sing Kham in the Royal Project Development Center in Huai Tom, there was a higher concentration of calcium in the orchard and had less symptoms of mango fruit than other orchards while Mr Saengwanwan Nuuan from the Royal Project Development Center, Mokcham and Mr. Chan Dok-in from the Prabat Huai Tom Royal Project Development Center, the mangoes were very abnormal and had a low concentration of calcium in the fruit.

From preliminary results of soil and plant analysis, mangoes and yield at the harvesting stage gave insight into problems and basic approaches to soil and fertilizer management. the other management orchards increased production efficiency by participation of farmers in the area to exchange knowledge with farmers. To educate understanding of soil improvement soil and fertilizer management is a guideline to increase the efficiency of mangoes production in the highlands. When considering the results of soil analysis for fertilizer application, it was found that the area of the Mokjam Royal Project Development center, Mr. Ekachai Bunrueang , Mr. Anan Muennam Nam , Mr. Saeng Wannuan and the demonstration plot of Mokjam Royal Project . The soil was acidic, phosphorus, potassium, calcium levels that should not be a problem. Therefore, fertilizer application should be given according to the amount of nutrients removal from the fruit product. The other two farmers were Mr. Duangdee Bunrueang and Mr. Duangyot Duangdee. The soil looks different from another orchard. In which both orchards had less calcium in the soil than the first group, would have to add more calcium and the Duangdee' orchard was less phosphorus in the soil than other. Then, there was needed to add more phosphorus fertilizer to mango trees

For the Phra Bat Huai Tom Royal Project Development Center area Farmers can be grouped according to similar soil analysis values as follows. The first group is Mr. Santi ToonSingkam's orchard. The garden had the most suitable soil acidity. There was higher calcium than other gardens. Having a higher target yield than other gardens with a target yield of 80 kilograms per plant. The second group consisted of Mr. Chan Dok-in, Mr. Suk-ngeon Pu-phat and Mr. Methi Po-tha, found that the soil was acidic. Very low in phosphorus potassium and calcium with a target yield of 60 kilograms per tree. The third group, Mr. Jampen Pu-Phat had a suitable high potassium With a target yield of 60 kilograms per plant

In the orchard that had low nutrient content in the soil, it was necessary to add more nutrients than the nutrient in crop removal. In addition, 10 grams of iron sulfate in the form of 25 grams of zinc sulfate, 4 grams of copper sulfate and 4 grams of manganese sulfate. 5 grams borax and 2 grams borax per 1 square meter canopy

area. Foliar fertilizers may be sprayed as necessary. During the young leaves May spray micronutrient concentrations should not exceed 1% (20 grams per 20 liters of water) during flowering - flowering. Boric acid spray 40 grams per 20 liters of water