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## The Factors Affecting Longan Flower Induction by Chlorate

SOMCHAI ONGPRASERT<sup>1</sup>, WINAI WIRIYA-ALONGKORN<sup>2</sup>

<sup>1</sup>*Mae Jo University, Department of Soil Resource and Environment, Thailand*

<sup>2</sup>*Mae Jo University, Department of Horticulture, Thailand*

### Abstract

It was found in 1998 that potassium chlorate was able to induce the flower in longan trees (*Dimocarpus longan* L.). Since then potassium chlorate has been used in most longan orchards in Thailand and some neighbouring countries. The recommended application rate in the early years was 500 g of potassium chlorate for a medium size tree. However, after application of the substance for 4-5 years many farmers experienced unsatisfied flower induction. The farmers responded to this phenomenon by increasing the application rates, up to 2,000 g in certain cases. This practice did not solve the problem, in the contrary, it may have created more problems on environment and longan orchards. This research was aimed at studying the factors affecting longan flower induction by chlorate. The studied factors were concentration of the substance and plant nutrients, season, shade and the number of time that the plants received chlorate. The study was done using 2 year-old longan trees grown in pots with sand culturing technique in a plastic greenhouse at Mae Jo University.

The following results were obtained. The concentration of 200 mg of potassium chlorate per liter of standard nutrient solution was appropriate for inducing flowers in the rainy and cool seasons and 400 mg L<sup>-1</sup> for the hot season. Toxic symptoms of over chlorate concentration varied with the concentration, i.e., ranged from less flowering with extended flowering period without leave and apex symptoms to no flowering with leave burn. Over concentration of nitrate induced leave flush and inhibited flowering. Shading for 7 days after the application of chlorate significantly reduced flowering. Increasing of chlorate concentration was not able to compensate the effect of shading. Repeatedly exposing to chlorate diminished the response of the trees. Split application of several low concentrations of chlorate resulted in the comparable flowering as that of the single application of appropriate concentration. The obtained results were able to explain existing phenomena on longan flowering after several years of repeatedly application of chlorate in orchards.

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