

Evaluation of a suitable method to apply zinc on the Leaf Scorch Decline (LSD) affected coconut (*Cocos nucifera* L.) palms

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LSD- affected coconut palms show a deficiency in zinc. To determine the effect of Zn on the recovery of LSD symptoms, the best application method of Zn need to be identified. Different application methods of Zn on LSD affected and healthy coconut palms were evaluated. Initially, root feeding of 25 ml of 1% ZnSO₄ was carried out as a split application of four times ar year. Secondly, the efficiency of root feeding was compared with trunk feeding method. Twenty ml of 5% ZnSO₄ was supplied either through roots or through trunk. Thirdly, the application of Zn was done either as spraying (1% ZnSO₄) or as axile treatment (12.5 mL of 8% ZnSO₄ applied to the pit made at the proximal end) on the 14th frond. Before and after treatment applications, root, trunk and leaf samples were collected according to the experiment to analyse for the Zn. Experiments were conducted in a Randomized Complete Block Design and data were analysed using SAS statistical package.

Root feeding of ZnSO₄ was not effective in improving the Zn levels in leaves or reduction in leaf scorching symptoms of LSD-affected palms, one year after the treatment application. To identify any obstruction for translocation, root feeding was compared with trunk feeding of zinc. The data revealed that there was an accumulation of root fed Zn in the roots. Further, the Zn level of trunk or the leaf was not increased by trunk application or the root application of zinc. This indicated a problem of translocating Zn thorough the vascular system of roots and the trunk. Therefore, both these methods could not be used for application of Zn on coconut palms.

Application of Zn through fronds was tested. Both leaf spraying and axile application of Zn increased the Zn levels significantly in healthy and LSD-affected palms. Therefore, it could be concluded that the best method of supplying Zn on coconut palms is through the frond. This can be either as spraying or as axile treatment. However, due to practical difficulties associated with axile treatment, spraying could be recommended as a better method than axile application. Further research is in progress to find out a practically feasible method for axile application of Zn using cotton wool moistened with nutrient solution. Finally, the most effective method will be used to apply Zn on the LSD-affected palms for evaluating the progress of the expression of LSD symptoms.