

2008

March

## Comparative Efficacy of Four Methods for Applying Micro-Nutrients to Oil Palm on Deep Peat

MANJIT SIDHU, CHEONG KENG KONG, MARTIADI KURNIAWAN, ABDUL HASYIM AND ZULKASTA SINURAYA

*Asian Agri Group, R&D Centre, Bahilang Estate, Tebing Tinggi, Deli, North Sumatera, Indonesia*

*Commercial experiences and earlier research findings have shown that direct application of non-chelated micro-nutrient fertilisers to peat have not always achieved the desired results as responses from treated palms have been inconsistent. With this objective in mind, a trial was established on four-year-old oil palm on deep peat (> 5 metres depth) in 2001 to evaluate more effective application methods and its results are summarised here.*

*In spite of peat soil's high fixation capacity, soil application of copper, zinc and iron sulphates was the most effective of the four application methods evaluated. Soil application of the micro-nutrient fertilisers increased fresh fruit bunch (ffb) yields by 2.6 - 3.4 tonnes per hectare per year.*

*Both the trunk injection and root infusion techniques can be regarded as "double-edged swords" with the potential for increasing as well as decreasing ffb yields depending on the types and dosages of micro-nutrients applied. Both techniques were found suitable for zinc sulphate application but not for copper and iron sulphates. Whilst application of zinc significantly increased yields (2.0 – 2.9 tonnes/ha/year), repeated annual injections and infusions of copper and infusions of iron caused phytotoxicity and subsequent yield decline.*

*Single annual foliar sprays of copper, zinc and iron sulphates significantly increased respective leaf nutrient levels, but had no positive impact on ffb yield. As leaf nutrients in young fronds declined rapidly after spraying, frequent spraying may be necessary to maintain optimum levels of the nutrients in young developing fronds throughout the year and to have a positive impact on ffb production.*

*For palms planted in the trial site, zinc was the most important micro-nutrient requirement. Inputs of zinc via three out of the four techniques evaluated, produced positive responses and significantly increased ffb production.*

**Keywords :** Fertiliser, micro-nutrient, oil palm, peat.