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Effect of Electromagnetic Fields on oil Palm Germination

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Oil palm has widely been grown in Southern Thailand. Nowadays, it has become an important economic plant. The oil from different varieties are used for bio-energy and industrial uses and also for human consumption. However, production of young oil palm trees is still limited and the plants are expensive because it takes up to 8 months for germination to occur and the germination percentage is only about 60 %. The slow germination rate and the high failure rate leads to additional costs because it makes disease control much more difficult. Electromagnetic Fields (EMFs) are known to increase overall percentage germination and shortens the incubation time of several plant species. We therefore present a physical method to stimulate oil palm germination by treating seeds with EMF. Oil palm seeds were exposed to EMF fields of 100mT to 250 mT and compared to controls. The treatments also were done for different period of times varying from 30 min to 5 hrs. The treated seeds were placed in germinators and sprayed with magnetically treated water. Germination percentages improved on seeds exposed to EMF and the time before germination decreased compared to the controls. The seeds which were exposed to EMFs at of 200 mT for 4 hrs started initial primary root at 8 days after magnetic treatment. There was 30% germination after 8 days incubation and 100% germination after 35 days. The results indicated that electromagnetic fields significantly shorten the time taken for oil palm seeds to germinate and greatly increases the proportion of seeds that do germinate. It reduces germination time of oil palm seeds from 8 months to 8 days and provides very high percentage of germination.

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