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A Review of 15 years of Oil Palm Irrigation Research in Southern Thailand*

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The climate in Southern Thailand has a regular dry season, with three to four months of soil water deficit, and Univanich started commercial irrigation of oil palms in the late 1980s. Research trials have compared irrigation methods, quantities of water applied, and interactions with fertilisers, and the responses of different breeding materials.

A comparison of four irrigation methods (sprinkler, microsprayer, furrow and drip) showed no significant differences in yield responses, though there was a suggestion that drip might be superior to the other methods, and drip was also preferred on grounds of operating costs and ease of management. Some practical aspects of drip installation are discussed in the paper. There were significant irrigation x fertiliser interactions, and with increased fertiliser inputs, the response to irrigation was more or less linear, reaching 10 tonnes FFB per hectare per year at 6.4 mm rainfall equivalent (450 litres/palm/day). The yield response to irrigation based on a calculated water deficit depended on the severity of the dry season. The response in any one year was related to the water deficit in the first quarter of the year, and also to that two years earlier; a multiple regression explained 91 per cent of the year-to-year variation in yield response.

Results from progeny trials duplicated with and without irrigation show that some progenies appeared to be more sensitive to drought, and gave larger responses to irrigation, than others. This could give breeders the option of selecting drought tolerant material for planting in areas where irrigation is not possible, or irrigation-responsive material for sites where irrigation is intended.

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