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NEWSFLASH: IPNI on Learning from Commercial Oil Palm Crop Performance

December 15, 2016. Penang, Malaysia – Like all farmers, oil palm planters learn from their own experiences. Yet, they are rarely sure if an exceptionally good or bad outcome is due to chance or a given combination of management practices and environmental conditions. On the other hand, extension agents and plantation advisors often combine information from controlled experiments in conditions that are assumed to be similar to a specific plantation, as well as their own experience, to support planters with managing their palms.

Unfortunately, this sort of knowledge transfer has its flaws. According to Dr. James Cock, senior agricultural advisor to the International Plant Nutrition Institute (IPNI), such a process in heterogenous oil palm growing environments may lead to firstly, the selection of technology by researchers which does not do well under real conditions and is therefore rejected by oil palm operators, or secondly, the rejection of technology by scientists because it did not perform well in trials, but might have done well under commercial conditions. Acknowledging this problem, IPNI's Southeast Asia Program tested, under its *Plantation Intelligence®* Program, a potential solution.

"We surmised", says IPNI's Dr. Cock, "that, if each harvest event is adequately characterized and a large number of such characterized events are analyzed together, it should be possible to associate crop response to management within a particular set of growth conditions". IPNI termed such sets of growth conditions "Homologous Events" (HEs). They used soil and climate information from a 6,000 ha commercial estate in one of IPNI partner plantations to test the idea.

The yield of fresh fruit bunches was analyzed from 2009 to 2013 on the conceptual basis that if HEs can be defined in terms of growing conditions and used to account for part of the yield variation, then the remaining variation within these events can be attributable to controllable management practices. The team found that HEs for the two years before and the year of the harvest improved models used to explain yield variation. Yield differences were in accordance with the expected effects of the distinct HEs confirming their validity as an analytical tool. They demonstrated that HEs with normal conditions gave the highest yields, HEs with either deficit or surplus water gave intermediate yields, while a combination of both deficit and excess water had the lowest yields.

IPNI's Senior Oil Palm Advisor, Christopher R. Donough, asserts that this is "a unique approach for commercial oil palm operations to understand the combined impacts of drought and flooding on crop performance".

The research, supported by IPNI's supporting partner Canpotex International Pte. Limited, was recently published in *Agricultural Systems* (149:99–111, 2016).



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About IPNI

The International Plant Nutrition Institute (IPNI) is a not-for-profit, science-based organization dedicated to the responsible management of plant nutrition for the benefit of people. Through cooperation and partnerships with respected institutions around the world, IPNI adds its strength to agronomic research, education, demonstrations, training, and other endeavors. Best management practices for nutrient stewardship encourage the concept of 4Rs - applying the right nutrient source, at the right rate, at the right time, and in the right place. To learn more about IPNI, please visit: www.ipni.net

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