

Review: 4R Plant Nutrition - A Manual for Improving the Management of Plant Nutrition

Editors: T.W. Bruulsema, P.E. Fixen and G.D. Sulewski

138 pages. International Plant Nutrition Institute, Peachtree Corners, Georgia, USA.

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As an oil palm agronomist, I often preach the benefits of fertilizer management to my clients in dollars and cents: namely, applying 7 kg per palm per year could be equivalent to applying 9 kg per palm if only we increase the uptake efficiency from, for example, 70 percent to 90 percent ($7 \text{ kg} \times 90\% = 6.3 \text{ kg}$; $9 \text{ kg} \times 70\% = 6.3 \text{ kg}$). Estates that are unaware or disregard this principle often suffer great losses.

The plantation, however, can only benefit from fertilizer management when it applies the four principles of 4R Nutrient Stewardship, i.e., applying fertilizers with the *right source* of nutrient, at the *right rate*, at the *right time*, and in the *right place*. It is therefore timely that the International Plant Nutrition Institute (IPNI) has published this condensed manual.

The spiral-bound book is handsome and easy to follow – major points in each chapter are devised by way of bullet point questions (and answers are provided at the end of the book). Surely this is a book that helps its readers digest the salient points!

Fertilizer recommendations should be based on grounded scientific principles and that is what this manual is about. The IPNI manual contains chapters on scientific principles behind each of the four Rs with supporting practices, and discusses adopting these practices on the farm, approaches for nutrient management planning, and measuring sustainability performance. Most of the chapters include modules outlining case studies from around the world.

Planters, do we know that mixture fertilizers (e.g., NK Mixture) are now called bulk blend fertilizers (Chapter 3)?

The manual has 9 chapters, entitled:

1. Goals of Sustainable Agriculture;
2. The 4R Nutrient Stewardship Concept;
3. Right Source (with Modules);
4. Right Rate (with Modules);
5. Right Time (with Modules),
6. Right Place (with Modules);
7. Adapting Practices to the Whole Farm (with Case Studies);
8. Supporting Practices (with Case Studies);
- and lastly 9. Nutrient Management Planning and Accountability (with Case Studies).

IPNI has drawn on its international presence to provide case studies from the four continents to support the 4R principles. The manual however, does not provide a case study on oil palm and should be used in combination with the paper by Goh *et al.* (2009).

Planters, remember that useful information never goes to waste. Having explored and digested both the manual and the oil palm case study, you would surely be a planter who pursues excellence.

Book review by Chiu Sheng Bin.

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To order the 4R Plant Nutrition Manual, please email seap@ipni.net or visit the webpage <http://seap.ipni.net/article/SEAP-3161>

Reference:

Goh, K.J., P.H.C. Ng and C.T. Lee. 2009. *Fertilizer management and productivity of oil palm in Malaysia. AAR Newsletter, October 2009: 2-24.*