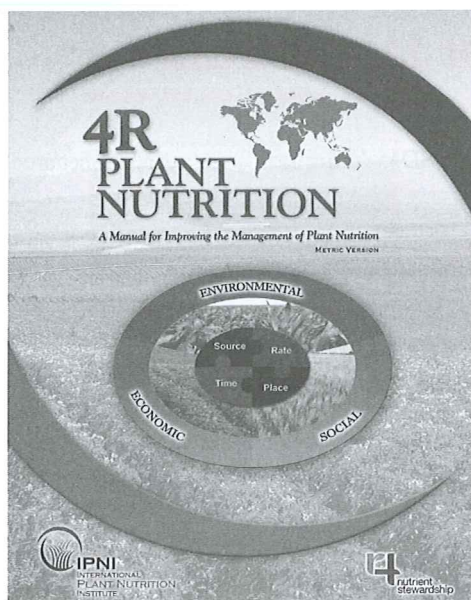


4R Plant Nutrition Manual: A Manual for Improving the Management of Plant Nutrition

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

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As an oil palm agronomist, I would often preach the benefits of fertiliser 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 per cent to 90 per cent ($7 \text{ kg} \times 90\% = 6.3 \text{ kg}$; $9 \text{ kg} \times 70\% = 6.3 \text{ kg}$). Estates who either are unaware or disregard this principle suffer a great loss.

The plantation, however, can only benefit from fertiliser management when it applies the four principles of 4R Plant Nutrition. It is therefore timely that the International Plant

Nutrition Institute (IPNI) has published this condensed manual. 4R stands for: applying fertilisers with the *right source* of nutrient, at the *right rate*, at the *right time*, and in the *right place*.

The spiral-bound book is handsome and easy to follow - major points in each chapter are revised 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!

Fertiliser recommendations should be based on grounded scientific principles and that is what this International Plant Nutrition Institute (IPNI) manual is about. The 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. And most of the chapters include modules outlining case studies from around the world.

Planters, do we know that mixture fertilisers (e.g. NK Mixture) are now called bulk blend fertilisers (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, <http://www.aarsb.com.my/wpcontent/Publication/Newsletter/PDF/2009-Oct.pdf>).

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

Chiu Sheng Bin

Editor's note:

This book is available from ISP at: RM160.00 and from IPNI at USD45 (order form: <http://seap.ipni.net/article/store>).



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