New Entries to IPNI Library as References

Roberts T. L. 2008. Improving Nutrient Use Efficiency. Turkish Journal of Agriculture and Forestry, 32:177-182.
Reference ID: 21904
Notes: #21904e
Abstract: Public interest and awareness of the need for improving nutrient use efficiency is great, but nutrient use efficiency is easily misunderstood. Four indices of nutrient use efficiency are reviewed and an example of different applications of the terminology show that the same data set might be used to calculate a fertilizer N efficiency of 21% or 100%. Fertilizer N recovery efficiencies from researcher managed experiments for major grain crops range from 46% to 65%, compared to on-farm N recovery efficiencies of 20% to 40%. Fertilizer use efficiency can be optimized by fertilizer best management practices that apply nutrients at the right rate, time, and place. The highest nutrient use efficiency always occurs at the lower parts of the yield response curve, where fertilizer inputs are lowest, but effectiveness of fertilizers in increasing crop yields and optimizing farmer profitability should not be sacrificed for the sake of efficiency alone. There must be a balance between optimal nutrient use efficiency and optimal crop productivity.

Souza L. F. D.and D. H. Reinhardt. 2015. Pineapple. Pages 179-201 IPO.
Reference ID: 21905
Notes: #21905e
Abstract: Pineapple is one of the tropical fruits in greatest demand on the international market, with world production in 2004 of 16.1 million mt. Of this total, Asia produces 51% (8.2 million mt), with Thailand (12%) and the Philippines (11%) the two most productive countries. America and Africa contribute 32% and 16% of world production, respectively, with Brazil (9%) and Nigeria (6%) also being major producers (FAO, 2006). A major part of world production is processed as canned products and juices, and about 25% goes to the fresh fruit market (Souza *et al*., 1999). In Brazil, pineapple is grown in most states and there has been a significant increase in production in recent years.

RSPO. Roundtable on Sustainable Palm Oil RSPO Impact Report 2014. 1-43. 2014. Kuala Lumpur, RSPO.
Reference ID: 21906
Notes: #21906e
Abstract: On 3 October 2014, the Roundtable for Sustainable Palm Oil (RSPO) issued its first impact report setting out the achievements of the organization over the past decade across three key areas - planet, people and profits.
In the report you will find information on many RSPO initiatives and projects - such as the RSPO complaints mechanism and the Remediation and Compensation Procedures for forest loss - as well as useful data on RSPO membership, production capacity, certified area and market uptake.
Among the accomplishments highlighted in the report, perhaps the most important is the fact that 18% of world's palm oil production is now RSPO certified. This number

is only set to grow as more companies become RSPO members and adopt responsible palm oil sourcing policies.
Other accomplishments include:
Smallholders: In 2014 our Smallholder Support Fund has reached USD 1.5mln, which were used to reimburse the costs of the RSPO certification for independent smallholder groups. As a result, 3307 individual smallholders in Indonesia, Malaysia and Thailand are now certified.
Production capacity: Between 2008 and June 2014 the annual CSPO production has grown by almost 18 times from 619, 012 tonnes to 11 125, 902 tonnes.
Market uptake: Sales of physical CSPO have grown by almost 65 per cent during the first two quarters of 2014 compared to the same period in 2013. This is the first time that CSPO sales have grown faster than supply, which increased by 29 per cent over the first two quarters of 2014 compared with the same period last year.

IPNI. Plant Nutrition Today - Summer 2015. 1-7. 2015. IPNI.
Reference ID: 21907
Notes: #21907e
Abstract: Summer 2015 No 1- Efficiency as a Metric of Sustainable Crop Nutrition
Summer 2015 No 2- Comparing Foliar and In-Soil Methods of Applying Plant Nutrients
Summer 2015 No 3- International Year of Soils: Nutrients and Soil Biology
Summer 2015 No 4- Scientists Meet to Chart Future Course for Improving potassium Nutrition of Crops
Summer 2015 No 5- Unmanned Aerial Systems for Agriculture
Summer 2015 No 6- Plant Nutrient Analyses Identifies Yield-Robbing Shortages
Summer 2015 No 7- Phosphorus Fertilizer Sources

Norton, R., Davidson, E., and Roberts, T. Nitrogen use efficiency and nutrient performance indicators: GPNM Task Team Report and Recommendations. 1-16. 2014. Washington, USDA National Institute of Food and Agriculture.
Reference ID: 21908
Notes: #21908e
Abstract: The Task Team recommends using Nitrogen Use Efficiency (NUE) to describe partial nutrient balance (also referred to as removal/use or output/input ratio) and note that it can be configured in different ways to show the current starting point (benchmark) from which future improvements can be assessed (progress indicator). NUE can be expressed at different scales from the farm to the country level. Neither a high nor a low NUE is an implicit target, but raising low values, which usually indicate inefficient use of added nitrogen, and lowering very high values, which usually indicates mining of soil nitrogen, will require appropriate interventions at the farm level, so that the farmer engagement is important in achieving progress. The task team recognizes that NUE relates to production and soil health, so it needs to be put in context to other indicators. We also note that significant lags between improvements in NUE and reductions in N pollution of groundwater and surface waters may occur, but nevertheless, increases in NUE and reductions of surplus N in agriculture should eventually lead to lower N pollution.

John K. S., C. S. Ravindran, J. George, M. M. Nair, and G. Suja. 2013. Potassium: A Key Nutrient for High Tuber Yield and Better Tuber Quality in Cassava. Better Crops With Plant Food, 26-27.
Reference ID: 21909
Notes: #21909e
Abstract: Potassium application led to increases in tuber yield, plant growth characteristics, tuber quality, K uptake and maintenance of available K in soil under cassava. In the absence of adequate K, poor yield and poor quality benefits were obtained even with application of high levels of N and P.

Hatfield J. L. and C. L. Walthall. 2015. Meeting Global Food Needs: Realizing the Potential via Genetics x Environment x Management Interactions. Agronomy Journal, 107:1215-1226.
Reference ID: 21910
Notes: #21910e
Abstract: Global food needs are projected to double by 2050 to feed the 9 billion people and the challenge presented to agriculture is whether this is feasible. These goals will be faced with an increasing variability in climate and more extremes in temperature and precipitation in all parts of the world and a decreasing land resource base in extent and quality. There are many challenges to be faced; however, focusing on the interactions of genetics x environment x management (G x E x M) offers the potential to feed the 9 billion. Understanding and quantifying yield gaps off er a framework to assess the progress, and the challenge will be to determine the most effective and efficient way of closing the yield gap by using water and nutrients more effi ciently. The more feasible approach of increasing potential will be to increase the actual yields rather than increasing potential yield. Actual yield increases and overall productivity can come from management systems focused on increasing land productivity because our ability to expand the available land resources are not a viable option. Development of methods of screening genotypes for a variety of responses to combinations of environmental and management scenarios off ers the potential pathway to developing a robust structure for G x E x M. We can meet this challenge; however, the paradigm of how we currently conduct research will not be rapid enough and we need to develop the transdisciplinary teams to represent each component of the G x E x M interaction.

Gibb I. 2015. How do some farm managers always seem to make the right decision? Australasian Agribusiness Perspectives, 1-8.
Reference ID: 21911
Notes: #21911e
Abstract: It is self-evident that good farm managers consistently make better decisions than poor managers. The best formal evidence of this is obtained from survey data and 'benchmarking' studies. Any collection of farm data sets will reveal relatively weak relationships between so called 'drivers' and profit. We know that the range of productivity and profit from the use of similar resources is at least threefold for virtually all farm data sets. There is very little doubt that the key variable and the key driver of profit is management skill but what exactly is meant by 'management skill'?

Parolini G. 2015. Charting the history of agricultural experiments. History and Philosophy of the Life Science, 37:231-241.
Reference ID: 21912
Notes: #21912e
Abstract: Agricultural experimentation is a world in constant evolution, spanning multiple scientific domains and affecting society at large. Even though the questions underpinning agricultural experiments remain largely the same, the instruments and practices for answering them have changed constantly during the twentieth century with the advent of new disciplines like molecular biology, genomics, statistics, and computing. Charting this evolving reality requires a mapping of the affinities and antinomies at work within the realm of agricultural research, and a consideration of the practices, tools and social and political structures in which agricultural experiments are grounded. Three main questions will be addressed to provide an overview of the complex world of agricultural research investigated by the special issue: What is an agricultural experiment? Who is an experimenter in agriculture? Where do agricultural experiments take place? It will become apparent that agricultural experiments have a wide relevance for human development as they touch upon concerns related to human health and nutrition, contribute to policy discussions, and can affect the social and political structures in which farming is embedded.

Parolini G. 2015. The Emergence of Modern Statistics in Agricultural Science: Analysis of Variance, Experimental Design and the Reshaping of Research at Rothamsted Experimental Station, 1919-1933. Journal of the History of Biology, 48:301-335.
Reference ID: 21913
Notes: #21913e
Abstract: During the twentieth century statistical methods have transformed research in the experimental and social sciences. Qualitative evidence has largely been replaced by quantitative results and the tools of statistical inference have helped foster a new ideal of objectivity in scientific knowledge. The paper will investigate this transformation by considering the genesis of analysis of variance and experimental design, statistical methods nowadays taught in every elementary course of statistics for the experimental and social sciences. These methods were developed by the mathematician and geneticist R. A. Fisher during the 1920s, while he was working at Rothamsted Experimental Station, where agricultural research was in turn reshaped by Fisher's methods. Analysis of variance and experimental design required new practices and instruments in field and laboratory research, and imposed a redistribution of expertise among statisticians, experimental scientists and the farm staff. On the other hand the use of statistical methods in agricultural science called for a systematization of information management and made computing an activity integral to the experimental research done at Rothamsted, permanently integrating the statisticians' tools and expertise into the station research programme. Fisher's statistical methods did not remain confined within agricultural research and by the end of the 1950s they had come to stay in psychology, sociology, education, chemistry, medicine, engineering, economics, quality control, just to mention a few of the disciplines which adopted them.

Maat H. 2011. The history and future of agricultural experiments. NJAS - Wageningen Journal of Life Sciences, 57:187-195.
Reference ID: 21914
Notes: #21914e
Abstract: An agricultural experiment is usually associated with a scientific method for testing certain agricultural phenomena. A central point in the work of Paul Richards is that experimentation is at the heart of agricultural practice. The reason why agricultural experiments are something different for farmers and agronomists is not their capacity to experiment as such but the embedding of experiments in a specific ecological, material and institutional environment. Using a historical perspective, changes are examined in the organization of agricultural experiments focusing on the Netherlands and colonial Indonesia during the first half of the 20th century and the international agricultural research institutes for the period thereafter. The results show a gradual shift in the role of experiments in the connection between science and practice. Initially, the link was considered to be established through various forms of experiments, rooted in an integrated social and technical understanding of agronomy. Gradually, this turned into a connection primarily established through various forms of communication. Recent work of Richards incorporates ideas that address key issues emerging from the history of agricultural experiments, dealing with an integrated social and technical understanding of agriculture.

Donough C. R., J. Cock, T. Oberthür, K. Indrasuara, Rahmadsyah, A. R. Gatot, and T. Dolong. 2015. Estimating Oil Content of Commercially Harvested Oil Palm Fresh Fruit Bunches - A Step Towards Increasing Palm Oil Yields. Oil Palm Bulletin, 70:8-12.
Reference ID: 21915
Notes: #21915e
Abstract: Oil palm growers are able to assign fresh fruit bunch (FFB) yields to individual blocks, and thus are able to manage their plantation (or smallholding) to optimise FFB yield. However, currently it is not possible to attribute oil extraction rate (OER), hence oil yield, in a similar way, because mills process FFB from many sources, deriving a common OER for all the FFB that is processed rather than for individual sources. OER depends on the intrinsic qualities of the FFB being milled, which is likely to differ from one batch of FFB to another, hence assessment of milling performance is better based on extraction efficiency rather than OER per se. The Southeast Asia Programme of the International Plant Nutrition Institute (IPNI SEA) recently showed that practices aimed at maximising FFB yield may not necessarily maximise OER. The bunch analysis (BA) method adapted by IPNI SEA for assessing oil content of FFB from commercial-scale harvesting in Indonesia can be implemented by plantations without much difficulty. BA and harvest audit data together allow growers to compute their Field Oil Recovery Efficiency (FORE), an assessment of the effectiveness of field practices on crop recovery and oil content. Pre-milling estimates of oil content (EOC) in harvested FFB allows mills to better measure their process performance based on their Mill Oil Recovery Efficiency (MORE). Knowledge of EOC will allow mills to pay growers for the oil content of their crop, providing further motivation to growers to improve FORE. These recovery efficiency measures allow a more holistic analysis of the overall oil recovery process involving the growers and the mills, likely leading to reduced friction and better overall performance.

Gassner A., M. F. Mohd Noor, and H. W. Hoong. 2006. The Use of Longterm Estate Data To Provide Critical Nutrient Limits For Oil Palms (*Elaeis Guineesis*) In Sabah. Pages 1-8.
Reference ID: 21916
Notes: #21916e
14th World Fertilizer Congress: Fertilizers and Fertilization: Stewardship for Food Security, Food Quality, Environment and Nature Conservation, 22-27 January 2006, Chiang Mai, Thailand
Abstract: The present paper presents a quick assessment for estates to check the fertility status of their oil palm. Usually, critical nutrient limits are established from long-term field trials. For a number of estates, however field trials have either not been carried out, or the data is not yet available. Especially for the state of Sabah (East-Malaysia) which is the largest planted area (1.3million ha) in Malaysia, limited data availability leads to adoption of the same critical nutrient limits that have been established for estates in West-Malaysia, independent of the significant differences in soil types and climate between the two regions. While data for individual palm trees are spars, all estates keep annual records of average foliar concentrations and yield on a block basis, whereby each management block is usually of about 20 to 50 hectares with an average of 130 oil palm trees per ha. Most oil plantations have estates distributed in different regions of Sabah, each with a different yield potential. Ten years of data from four different regions (Sandakan, Tawau, Lahad Datu and Kudat) were used to establish critical nutrient limits for Sabah using the upper boundary line approach. Nutrient analysed were N, P, K, Ca, Mg and B. For all nutrients a critical nutrient range could be established, which were found to be below the standard recommendation. It was found that despite the apparent "over fertilisation" a number of blocks have critical nutrient ranges below the optimum, indicating the present sampling design does not allow for optimal fertilisation.

Pasuquin J. M., S. Saenong, P. S. Tan, C. Witt, and M. J. Fisher. 2012. Evaluating N management strategies for hybrid maize in Southeast Asia. Field Crop Research, 134:153-157.
Reference ID: 21917
Notes: #21917e
Abstract: Increasing yields on existing farmland is the only option to meet the rising demand for maize without resorting to land use change. Maize yields in Southeast Asia are typically less than their potential because of sub-optimal fertilizer management, particularly nitrogen. We evaluated a range of N-fertilizer treatments on irrigated maize grown on medium-textured soils in Indonesia and Vietnam during the dry seasons of 2008–2009. The treatments included split applications with rates adjusted according to leaf color.
We found no advantage in more than two splits in terms of yield or agronomic efficiency. Adjusting applications according to leaf color gave 0.80 t ha.1 more grain than fixed rates and US$ 182 ha.1 higher profit. N-use was highly efficient in the range of 30–65 kg kg.1 N.

Paoli G., J. Schweithelm, P. Gillespie et al. 2014. Best Management Practices in the Indonesian Palm Oil Industry: Case Studies, Daemeter Consulting, Bogor, Indonesia.
Reference ID: 21918
Notes: #21918e
Abstract: This document presents six Case Studies on palm oil sustainability in Indonesia. Each study highlights an area where progress is being made by leading members of industry to improve the social and environmental performance of plantations and mills. Progress is evident in the actions taken by companies profiled, their achievements to date, and commitment to continuous improvement in one or more aspects of their operations. The Case Studies demonstrate that progress to mitigate social, biodiversity, and greenhouse gas (GHG) emissions-related impacts of oil palm is possible and underway. Much of the information provided in the Case Studies is not widely known outside industry, and in some cases, outside the firms themselves that are profiled. The aim of this report is to make these success stories and related technical information more widely known within industry and among actors in government, civil society, and the donor community engaged in monitoring and/or supporting industry to achieve Indonesia's vision for oil palm as a driver of sustainable economic growth. The authors hope the Case Studies will encourage industry associations and individual companies to adopt a proactive approach in experimenting with new practices and to share lessons learned with colleagues. It is further hoped the study will encourage government, consumers, and downstream supply chain actors to provide incentives for wider adoption of best management practices (BMPs) by industry as a whole.

IPNI. Planters' Diary 2016. 2016.
Reference ID: 21919
Notes: S 36 #21919

Adnan, H. Cash-rich plantation firms on the prowl. 1-4. 2014. Malaysia, The Star Online.
Reference ID: 21920
Notes: #21920e

Cash, D., Clark, W., Alcock, F., Dickson, N., Eckley, N., and Jäger, J. Salience, Credibility, Legitimacy and Boundaries: Linking Research, Assessment and Decision Making. KSG Faculty Research Working Paper Series , 1-25. 2002.
Reference ID: 21921
Notes: #21921e
Abstract: The boundary between science and policy is only one of several oundaries that hinder the linking of scientific and technical information to decision making. Managing boundaries between disciplines, across scales of geography and jurisdiction, and between different forms of knowledge is also often critical to transferring information. The research presented in this paper finds that information requires three (not mutually exclusive) attributes – salience, credibility, and legitimacy – and that what makes boundary crossing difficult is that actors on different sides of a boundary perceive and value salience, credibility, and legitimacy differently. Presenting research on water management regimes in the United States, international agricultural research systems, El Niño forecasting systems in the Pacific and southern Africa, and fisheries in the North Atlantic, this paper explores: 1) how effective boundary work involves creating salient, credible, and legitimate information

simultaneously for multiple audiences; 2) the thresholds, complementarities and tradeoffs between salience, credibility, and legitimacy when crossing boundaries; and 3) propositions for institutional mechanisms in boundary organizations which effectively balance tradeoffs, take advantage on complementarities, and reach thresholds of salience, credibility, and legitimacy.

Bruulsema T. and P. Fixen. 2015. U.S. Fertilizer Demand and Nutrient Use Issues: Forecasting the Future of the NUE Trend. Pages 1-23 IPNI, Florida.
Reference ID: 21922
Notes: #21922e
Fertilizer Outlook and Technology Conference, Jacksonville, FL 10
Nov 2015

Chiu, S. B. Book Review: Oil Palm - Best Management Practices for Yield Intensification by Thomas Fairhurst and WIlliam Griffiths. 501-502. 2015. Kuala Lumpur, ISP Management Sdn Bhd.
Reference ID: 21923
Notes: #21923e > S serial #21349

IPNI. Better Crops South Asia Vol 9 No 1 2015. Better Crops - South Asia 9[1], 1-40. 2015. India, IPNI South Asia.
Reference ID: 21924
Notes: #21924e
Special Focus Issue on Phosphorus
Abstract: In this issue:
IPNI Scholar Award Recipients Announced for 2015
Phosphorus Management in Crops and Cropping Systems in India - A Review - S.K. Sanyal, B.S. Dwivedi, V.K. Singh, K. Majumdar, S.C. Datta, S.K. Pattanayak, and K. Annapurna
Farm Typology-based Phosphorus Management for Maize in West Bengal - H. Banerjee, R. Goswami, S. Dutta, S. Chakraborty, and K. Majumdar
Enhancing Rice Yield, Profitability, and Phosphorus Use Efficiency in West Bengal using the Nutrient Expert Fertilizer Decision Support Tool - M.K. Mandal, S. Dutta, K. Majumdar, T. Satyanarayana, M. Pampolino, V. Govil, A.M. Johnston, and G.C. Shrotriya
Phosphorus Response of Oilseeds and Pulses in India and Profitability of Phosphorus Fertilizer Application - K. Majumdar and V. Govil
Phosphorus Response and Benefits of Phosphorus Fertilizer Use in Maize-Wheat Cropping System of Northern Karnataka - Y.R. Aladakatti, D.P. Biradar, D. Shivamurthy, T. Satyanarayana, K. Majumdar, S. Dutta, and A.M. Johnston
Comparative Study on Yield Variability and Phosphorus Fertilizer Use Trends in the Established and Emerging Maize-growing Districts of Telangana - A. Madhavi, D. Balaguruvaiah, M. Shankariah, G. Manjulatha, G. Kiran Reddy, Prabhakar Reddy, Pavanchandra Reddy, A. Srinivas, K. Suresh, T. Satyanarayana, S. Dutta, and K. Majumdar
Phosphorus Response in Bt Cotton: A Comparative Study in Karnataka and Odisha - Y.R. Aladakatti, S.K. Pattanayak, T. Satyanarayana, D.P. Biradar, S.B. Manjunath,K. Majumdar and A.M. Johnston
Balanced Phosphorus Application for Improved Yield and Nurtient Use Efficiency under Rice-Wheat Systems of India - V.K. Singh, R.P. Mishra, B.S. Dwivedi, S.K. Singh, and K. Majumdar

4R Phosphorus Management of Acid Soils of Odisha - S.K. Pattanayak, T. Satyanarayana and K. Majumdar Current Research: IPNI South Asia Region Building Partnerships to Support Balanced Fertilization - A.M. Johnston

IPNI. Better Crops with Plant Food Vol 99 No 3 2015. Better Crops With Plant Food 99[3], 1-24. 2015. IPNI.
Reference ID: 21925
Notes: #21925e
Abstract: In this Issue:
IPNI Annual Program Report is Now Available
Nitrogen Management in Illinois Intensifies as State Implements Nutrient Loss Reduction Strategy by Jean Payne and Emerson Nafziger
IPNI Board of Directors Elects New Officers
Co-granulated Elemental Sulfur/Sulfate Fertilizers and Their Role in Crop Nutrition by Mike J. McLaughlin, Fien Degryse, Rodrigo C. da Silva, and Roslyn Baird
Sulfur Nutrition of Oil Palm in Indonesia-The Neglected Macronutrient by Joska Gerendas, Christopher Donough, Thomas Oberthur, Rahmadsyah, Gatot Abdurrohim, Kooseni Indrasuara, Ahmad Lubis, Tenri Dolong, and Miles Fisher
Ginger Yield and Quality Influenced by Potassium Fertilization by Lujiu Li, Fang Chen, Jiajia Wang, Dianli Yao, and Pingping Wu
Coffee-Forage Intercropping is a Sustainable Production System for Brazil by Jose Laercio Favarin, Tiago Tezotto, Adriene Woods Pedrosa, and Ana Paula Neto
Precision Nutrient Management in No-Till Wheat: A Case Study for Haryana by Tek B Sapkota, Kaushik Majumdar and M.L.Jat
Nutrient Expert - Going Global with Improved Fertilizer Recommendation by Adrian M Johnston
Switchgrass Responds Well to Nitrogen in the Arkansas Delta Region, But Not to Phosphorus or Potassium by V.Steven Green, Charles P West and Alexandre Rocateli
From Science to Farming and to Food Security by Luis I Prochnow

Oliveira, A. M. G., Souza, L. F. D., and Cabral, J. R. S. Adubação de abacaxi Pérola para o Extremo Sul da Bahia: Pearl pineapple fertilizer to the extreme south of Bahia. 2009. Brazil, Embrapa.
Reference ID: 21926
Notes: #21926e in portuguese Number 40 August 2009
Abstract: Extreme South of Bahia has good aptitude for horticulture in general as flatlands that enable easy mechanization, and favorable climatic conditions, especially good distribution of rainfall (average 1,800 mm per year). Based on preliminary experimental results obtained in the municipalities of Porto Seguro and Santa Cruz Cabrália, elaborated the 1st approach of fertilizer recommendation for the pineapple grown without irrigation in the region. In Tables 1 to 3 are presented the recommended doses of most nutrients and fertilizers used for growing, based on the chemical analysis of the soil. Fertilizers mentioned are the simple susperfosfato (18% P2O5), triple superphosphate (42% P2O5), urea (45% N), ammonium sulphate (20% N), potassium chloride (58 % K2O) and potassium sulfate (50% K2 O). (translated via google translate)

Souza, L. F. D. Os Micronutrientes e o Abacaxizeiro: The Micronutrients and Pineapple. 2007. Brazil, Embrapa.
Reference ID: 21927
Notes: #21927e in portuguese No 39 Dec 2007
Abstract: Despite numerous evidences problems caused by micronutrient deficiencies in agriculture from various regions of Brazil, was not true for most crops the usual application of same in the form of fertilizers. With respect to the pineapple, special attention should be given to micronutrients iron (Fe), zinc (Zn), copper (Cu) and boron (B), for which there are findings of the production limitations occurrences, in different parts of the world. In Brazil there are losses of records to plant development and / or the weight of the fruit, caused by copper deficiencies (Figure 1) or boron in areas grown with pineapple. Even with these findings, it is observed that little attention has been devoted to applications micronutrients in commercial pineapple plantations in Brazil, especially in crops led by small and medium producers (translated via google translate)

Ghosh B. N., R. J. Singh, and P. K. Mishra. 2014. Soil and Input Management Options for Increasing Nutrient Use Efficiency. Pages 17-27 *in* A Rakshit, editor. Nutrient Use Efficiency: From Basics to Advances. Springer.
Reference ID: 21928
Notes: #21928e
Abstract: Chapter 2 - Public interest and awareness of the need for improving nutrient use efficiency is great, but nutrient use efficiency is easily misunderstood. Four indices of nutrient use efficiency are reviewed, and an example of different applications of the terminology shows that the same data set might be used to calculate a fertilizer N efficiency of 21 or 100 %. Fertilizer N recovery efficiencies from researcher-managed experiments for major grain crops range from 46 to 65 %, compared to on-farm N recovery efficiencies of 20-40 %. Fertilizer use efficiency can be optimized by fertilizer best management practices that apply nutrients at the right rate, time, and place and accompanied by the right agronomic practices. The highest nutrient use efficiency always occurs at the lower parts of the yield response curve, where fertilizer inputs are the lowest, but effectiveness of fertilizers in increasing crop yields and optimizing farmer profitability should not be sacrificed for the sake of efficiency alone. There must be a balance between optimal nutrient use efficiency and optimal crop productivity.

Xu X., X. Liu, P. He, A. M. Johnston, S. Zhao, S. Qiu, and W. Zhou. 2015. Yield Gap, Indigenous Nutrient Supply and Nutrient Use Efficiency for Maize in China. Plos One, 1-12.
Reference ID: 21929
Notes: #21929e
Abstract: Great achievements have been attained in agricultural production of China, while there are still many difficulties and challenges ahead that call for put more efforts to overcome to guarantee food security and protect environment simultaneously. Analyzing yield gap and nutrient use efficiency will help develop and inform agricultural policies and strategies to increase grain yield. On-farm datasets from 2001 to 2012 with 1,971 field experiments for maize (Zea mays L.) were collected in four maize agro-ecological regions of China, and the optimal management (OPT), farmers' practice (FP), a series of nutrient omission treatments were used to analyze yield gap, nutrient use efficiency and indigenous nutrient supply by adopting meta-analysis and ANOVA analysis. Across all sites, the average

yield gap between OPT and FP was 0.7 t ha-1, the yield response to nitrogen (N), phosphorus (P), and potassium (K) were 1.8, 1.0, and 1.2 t ha-1, respectively. The soil indigenous nutrient supply of N, P, and K averaged 139.9, 33.7, and 127.5 kg ha-1, respectively. As compared to FP, the average recovery efficiency (RE) of N, P, and K with OPT increased by percentage point of 12.2, 5.5, and 6.5, respectively. This study indicated that there would be considerable potential to further improve yield and nutrient use efficiency in China, and will help develop and inform agricultural policies and strategies, while some management measures such as soil, plant and nutrient are necessary and integrate with advanced knowledge and technologies.

Roberts T. L. and A. E. Johnston. 2015. Phosphorus use efficiency and management in agriculture. Resources, Conservation and Recycling, 105:275-281.
Reference ID: 21930
Notes: #21930e
Abstract: Phosphorus (P) is an essential element for all life, is essential for global food security, and is a limited,nonrenewable global resource, making its efficient use vitally important. There is a commonly held beliefthat P fertilizer is very inefficient because P recovery by crops in the year it is applied is often only 10-15%.The residual fertilizer P not recovered by the crop is believed to be permanently tied-up or "fixed" in thesoil in forms not available to plants. However, field experiments do not support that view. The behaviorof inorganic P in fertilizer when applied to the soil can be explained as contained in four pools of varyingavailability to plants based on its accessibility to plant roots and its extractability by soil test reagents.Phosphorus use efficiency can be assessed in several ways, but the "balance" method (i.e. partial nutrientbalance) calculated as a P removal-to-input ratio and expressed as a percent best reflects the behavior offertilizer P in soils and supports the concept of P transfer and availability within the four pools discussed.When determined by the balance method, P recovery is often in the range of 50-70% or even higher. Improving fertilizer P use and effectiveness is achievable through the implementation of fertilizer bestmanagement practices within the context of 4Rs-application of the right nutrient source, applied at theright rate, right time, and in the right place.

Emile M., N. Nicolas, N. M. S. Soupi, S. Abdourahamane, and O. N. Denis. 2007. Implication of Cysteine, Glutathione and Cysteine Synthase in Theobroma cacao L. Zygotic Embryogenesis. Biotechnology, 6:129-137.
Reference ID: 21931
Notes: #21931e
Abstract: An investigation on sulfur metabolism during cocoa zygotic embryogenesis was carried out by analysing total amino acids, cysteine, glutathione, cysteine synthase and proteins in the endosperm and in the embryos. Cacao clones SNK10 and Sca6 were used. As the embryo was getting mature, the endosperm became progressively cellularized from the mycropilar zone. Amino acid, cysteine, glutathione and protein contents were always higher in the embryos than in the endosperm in both genotypes. In the embryo, the contents of these molecules were higher in the earlier stages while in the endosperm, their contents were almost constant during maturation. There was a negative correlation ($r = -0.623$; $p<0.01$) between cysteine content in the embryo and glutathione content in the endosperm. Meanwhile cysteine content was positively correlated to amino acids ($r = 0.883$; $p<0.01$) and protein ($r = 0.866$; $p<0.01$) in the embryo. Our findings suggest that cysteine might be mainly provided by the endosperm for embryo development. In the

embryo, two cysteine synthase isoforms (A and B) were revealed from stage 5+ to stage 8+ but were not detected from stage 0+ to stage 4+. Reversely, in the endosperm, both isoforms were present only from stage 0+ to stage 3+. Similarity in protein distribution in the endosperm at different embryo stages suggests that embryogenesis takes place through seven steps characterized by their protein patterns.

Emile M., N. Nicolas, I. E. Auguste, S. Abdourahamane, and D. N. Omokolo. 2010. Sulphur depletion altered somatic embryogenesis in *Theobroma cacao* L. Biochemical difference related to sulphur metabolism between embryogenic and non embryogenic calli. African Journal of Biotechnology, 9:5665-5675.
Reference ID: 21932
Notes: #21932e
Abstract: Somatic embryogenesis is a useful tool for *Theobroma cacao* improvement and propagation. Depending on culture medium composition, different morphogenetic structures (including somatic embryo) occur in response to alteration of genes expression patterns and biochemical changes. The effect of SO4 2- ion deficiency in culture media on somatic embryogenesis was studied through sequential replacement of MgSO4 and K2SO4 by MgCl2 and KCl, respectively, at different steps of somatic embryogenesis. It appears that explants gradually lost their embryogenic competence as the period of exposition to sulphur free medium increases. These results suggest that, sulphur availability and the duration to sulphur exposition might modulate the expression of genes involved in somatic embryo differentiation in *T. cacao*. Cysteine, glutathione, reducing sugars, cysteine synthase and cysteine desulfurase activities were analysed in different morphogenetic structures obtained *in vitro*. Cysteine and reducing sugars contents appeared to be higher in embryogenic calli than their nonembryogenic homologues, whereas glutathione content appears to be lower in embryogenic calli. Cysteine synthase activities also discriminate the embryogenic calli from non embryogenic calli. In the embryogenic calli, the ratio cysteine synthase/cysteine desulfurase activities were above unit. The assimilation of exogenous sulphur (sulphate) for the synthesis of cysteine might hence be crucial for somatic embryogenesis in *T. cacao*. This explains the reduction and the absence of somatic embryo response observed during sulphur depletion in culture media. Sulphur nutrition is therefore critical in cacao somatic embryogenesis.

Murphy, R., Holmes, K., and Thomas, S. GRO-Cocoa (Global Research on Cocoa) Issue 14 December 2008. Murphy, R., Holmes, K., and Thomas, S. 1-8. 2008. USDA, CABI Europe.
Reference ID: 21933
Notes: #21933e
Abstract: In this issue:
More on metalaxyl and the EU
Microsatellite study identifies new cocoa groups
How Nigeria is rehabilitating its cocoa
Looking forward for Latin America cocoa
Advances and challenges with witches' broom
New farmer' manual
News on COPAL ICRC 2009

Leiter J. and S. Harding. 2004. Trinidad, Brazil, and Ghana: three melting moments in the history of cocoa. Journal of Rural Studies, 20:113-130.
Reference ID: 21934
Notes: #21934e
Abstract: This paper examines decline in cocoa production at three historical moments:Trinidad in the early 18th century, Brazil in the first half of the 20th century, and Ghana in the recent transition from colonialism to independence. In each, decline followed promising expansion. Conventional explanations have been based on biological, agronomic, and market factors. Following a commodity systems approach, we use the extant literature to focus in addition on labor control dilemmas and the consequences of state action and inaction. Throughout, use of the cocoa commodity system as the unit of analysis exposes important commonalities related to power, constraint, and motivation.

Li Y.-M., M. Elson, D. Zhang, R. C. Sicher, H. Li, L. W. Meinhardt, and V. Baligar. 2013. Physiological Traits and Metabolites of Cacao Seedlings Influenced by Potassium in Growth Medium. American Journal of Plant Sciences, 4:1074-1080.
Reference ID: 21935
Notes: #21935e
Abstract: Cacao (*Theobroma cacao* L.) is of significant economic importance in several tropical countries but its yield potentials are low mainly because of poor soil fertility especially low levels of potassium (K). Cacao has a high demand for K to maintain healthy growth and production. Knowledge of K use in cacao will help the development of suitable crop management practices and will aid breeding varieties adapted to environments with a limited soil K supply. Using a plant growth chamber, we investigated the growth and physiological traits among three cacao varieties at three levels of growth medium K (52, 156, and 469 mg·plant-1). Significant K effects were observed on growth traits including stem diameter, root length, chlorophyll b, and the ratio of chlorophyll a/b. Significant K effect was also found on carbo- hydrate metabolites, such as fructose, glucose, myo-inositol, raffinose and starch. However, no K effect was observed in other growth and physiological indicators, including biomass of seedling and net photosynthetic rate. There were significant genotype differences on seedling growth indicators, including stem diameter, stem height, total biomass, leaf biomass, leaf area, root length, chlorophyll a + b and carotenoids. Genotype difference was also found on all measured carbohydrate and starch metabolites, except maltose and raffinose. Results of this study indicate that although K plays a critical role in cacao tree growth and productivity, cacao may be less sensitive to K deficiency during the seedling stage. The present results improved our understanding about K and plants interaction in cacao seedlings, which is useful for crop management and germplasm utilization.

Moriarty, K., Elchinger, M., Hill, G., Katz, J., and Barnett, J. Cacao Intensification in Sulawesi: A Green Prosperity Model Project. 1-142. 2014. National Renewable Energy Laboratory (NREL).
Reference ID: 21936
Notes: #21936e
Abstract: Cacao is an important cash crop in Indonesia, cultivated by an estimated one million smallholders, and is an important economic driver in rural Sulawesi Island. Indonesia is the third largest cocoa bean producer in the world in a market where demand has exceeded supply in recent years. Changes in Indonesian policy and export taxes have led to a significant increase in downstream cocoa processing

activities within Indonesia, supporting many jobs. Cacao smallholders are suffering from declines in production negatively impacting household income. The two most significant reasons for low production are aging trees and pest infestations. Indonesia's cacao boom started in the early 1990s and many trees have reached an age of 20 to 25 years, when they are no longer productive. The cacao industry estimates that pest infestations reduce yield by 40%. Cacao uses more land than other crops in Green Prosperity's starter districts of Mamuju and Mamasa in West Sulawesi province.
This model project, set in selected cacao-growing landscapes of Sulawesi Island, explores the impacts of two established types of training which the cacao industry has identified as the best methods for improving production and smallholder income: farmer field schools (FFS) and cocoa development centers (CDC). As is the case for all eight model studies developed for the Green Prosperity project, it is not expected that this illustrative project would necessarily be implemented in the form assessed in this report; rather, the methodologies of assessment and analysis described and employed here are intended as a guide to how well similar agriculture intensification projects can meet the various Green Prosperity program requirements.
This model project is based on the premise that education and training can substantively improve economic outcomes for the smallholders; it is not assumed that the smallholders lack knowledge of how to effectively manage their farms, but they may not know how and when to make changes that would positively impact their income. Moving smallholders from knowledge to action in implementing interventions is a function of a smallholder's belief in the benefits of the intervention, labor required, and availability of inputs. While some smallholders are already aware of the techniques taught in training, many lack understanding of the underlying causes of why their production is declining.

Reed, S. Sensory Analysis of Chocolate Liquor. 1-14. 2010. Cargill.
Reference ID: 21937
Notes: #21937e
Abstract: Flavor is the most important organoleptic property of a food: if food didn't taste good, people wouldn't eat it. Human beings use all five senses to perceive flavor, and the most important sense used to describe the flavor of a food is *taste*. The basic sense of taste uses receptor cells, which are located within our tongue's taste buds and are able to perceive all five basic tastes. The scientific disciplines of sensory science and flavor chemistry use experimental design and the human senses to aid businesses in making educated decisions about their products; therefore, it is important that a food manufacturer-such as a confectioner-strives to control all variability in their raw materials and processes, so that they may produce finished products with consistent flavor. Sensory testing in the form of daily tastings of both semi-processed and finished product can assure manufacturers that their products meet specific flavor requirements.
Cocoa beans from the tree *Theobroma cacao* are a very complex raw ingredient used to make the chocolate liquor used in chocolate and for cocoa powder manufacturing. The complexity of the cocoa bean's flavor mystifies chocolate manufacturers and flavor chemists still today. Currently, more than 500 flavor compounds have been identified from cocoa products, and identifying the source of each of these flavors is a science in itself.
Each lot of cocoa beans should be evaluated for flavor prior to processing because the reproducibility of consistent flavor may vary greatly from lot to lot. A confectioner should never take for granted that their cocoa beans have been harvested,

transported, and processed precisely the same as they always have been in the past; therefore, manufacturers have to be able to adapt and adjust formulations to avoid undesirable changes in the flavor profile of their finished products, which makes chocolate and cocoa powder manufacturing somewhat of an art.

Williams J. S., S. A. Hall, M. J. Hawkesford, M. H. Beale, and R. M. Cooper. 2002. Elemental Sulfur and Thiol Accumulation in Tomato and Defense against a Fungal Vascular Pathogen. Plant Physiology, 128:150-159.
Reference ID: 21938
Notes: #21938e
Abstract: The occurrence of fungicidal, elemental S is well documented in certain specialized prokaryotes, but has rarely been detected in eukaryotes. Elemental S was first identified in this laboratory as a novel phytoalexin in the xylem of resistant genotypes of Theobroma cacao, after infection by the vascular, fungal pathogen Verticillium dahliae. In the current work, this phenomenon is demonstrated in a resistant line of tomato, Lycopersicon esculentum, in response to V. dahliae. A novel gas chromatography-mass spectroscopy method using isotope dilution analysis with 34S internal standard was developed to identify unambiguously and quantify 32S in samples of excised xylem. Accumulation of S in vascular tissue was more rapid and much greater in the disease-resistant than in the disease-susceptible line. Levels of S detected in the resistant variety (approximately 10 µg g-1 fresh weight excised xylem) were fungitoxic to V. dahliae (spore germination was inhibited >90% at approximately 3 µg mL-1). Scanning electron microscopy-energy dispersive x-ray microanalysis confirmed accumulation of S in vascular but not in pith cells and in greater amounts and frequency in the Verticillium spp.-resistant genotype. More intensive localizations of S were occasionally detected in xylem parenchyma cells, vessel walls, vascular gels, and tyloses, structures in potential contact with and linked with defense to V. dahliae. Transient increases in concentrations of sulfate, glutathione, and Cys of vascular tissues from resistant but not susceptible lines after infection may indicate a perturbation of S metabolism induced by elemental S formation; this is discussed in terms of possible S biogenesis.

Siti Afida I., G. Razmah, S. K. Yeong, and A. H. Hazimah. 2015. Biodegradability of Palm-Based Lubricants. Journal of Oil Palm Research, 27:425-432.
Reference ID: 21939
Notes: #21939e
Abstract: In the European countries, around 600 000 t of lubricants are released into the environment through normal use such as chain saw oils, railway point's greases and two-stroke engine oils every year. The toxicity and biodegradability of lubricants are a crucial aspect in managing the sustainability of environmental. This article is intended to evaluate the biodegradability of palm-based lubricants in order to establish their environmental-friendliness. The respirometric method was used to monitor the biodegradation of lubricant samples over 28 days as described in the OECD 201F Test Method. The results showed that palm-based lubricants; mould oil, BO-20 and BO-18, readily biodegraded in aquatic environment with the biodegradability of mould oil reached 62.7% within 23 days, BO-20 reached 62.8% within 11 days and BO-18 reached 63% within 14 days which surpassed the 60% pass level within the test period. Meanwhile, the petroleum-based lubricants, mineral oil and motor oil, were not readily biodegraded when tested according to standard method OECD 301F as their biodegradability did not surpass the 60% pass level within the 28 days test period. The viscosity of a lubricant may also be used as an

indicator in predicting the biodegradability of that lubricant. The petroleum-based white oil for example, has a low viscosity and it is readily biodegradable. The petroleum-based lubricant which is not readily biodegradable may cause problems when it comes to loss lubricants, accidental spillage and disposal. The use of palm-oil lubricants are more environmental-friendly and are one of the alternatives to reduce adverse effects of lubricants on ecosystem.

Amit B., A. A. Tuen, K. Haron, M. H. Harun, and N. Kamarudin. 2015. The Diet of Yellow-Vented Bulbul (*pycnonotus goiavier*) in Oil Palm Agrosystems. Journal of Oil Palm Research, 27:417-424.
Reference ID: 21940
Notes: #21940e

Muhamad H., B. H. Zainudin, Z. A. M. Zulhilmi, and N. K. Abu Bakar. 2015. A Rapid and Cost Effective Ultrasonic Solvent Extraction Method for Determination of -Cyhalothrin and cypermethrin residue. Journal of Oil Palm Research, 27:377-386.
Reference ID: 21941
Notes: #21941e

Ho C. M., L. C. L. Ooi, S. G. Tan, C. L. Ho, and R. Singh. 2015. A Chloroplast DNA (cpDNA) Extraction Protocol for Diversity Analysis of Oil Palm (*Elaeis* spp.). Journal of Oil Palm Research, 27:306-314.
Reference ID: 21942
Notes: #21942e

Ismail B. S., K. E. Ooi, and M. A. Tayeb. 2015. Laboratory Assessment of ^{14}C-Phenyl Metsulfuron-Methyl Degradation in an Oil Palm Plantation Soil. Journal of Oil Palm Research, 27:403-416.
Reference ID: 21943
Notes: #21943e

Devi P. P. K., A. H. Hazimah, T. I. Tuan Noor Maznee, S. K. Yeong, S. S. Hoong, A. Kushairi, and Y. M. Choo. 2015. Optimisation on Synthesis of Acrylated Epoxidised Palm Olein using Response Surface Methodology. Journal of Oil Palm Research, 27:366-376.
Reference ID: 21944
Notes: #21944e

Varman M. and S. Saka. 2015. A Comparative Evaluation of Phenolic Hydroxyl Content of Oil Palm. Journal of Oil Palm Research, 27:360-365.
Reference ID: 21945
Notes: #21945e

Ng M. H. and Y. M. Choo. 2015. Enhancing the Separation and Purification Efficiency of Palm Oil Carotenes Using Supercritical Fluid Chromatography. Journal of Oil Palm Research, 27:387-392.
Reference ID: 21946
Notes: #21946e

Sarpan N., S.-Y. Kok, S.-K. Chai, A. Fitrianto, A. Nuraziyan, I. Zamzuri, M. Ong-Abdullah, and S. E. Ooi. 2015. A Model for Predicting Flower Development in *Elaeis guineensis* Jacq. Journal of Oil Palm Research, 27:315-325.
Reference ID: 21947
Notes: #21947e

Abd Wafti N. S., H. N. L. Lik, and Y. M. Choo. 2015. Production Technology of Biodiesel from Palm Fatty Acid Distillate using Mild Acid Catalyst. Journal of Oil Palm Research, 27:352-359.
Reference ID: 21948
Notes: #21948e

Nuraliza N., S. Syahrullail, and D. M. Razak. 2015. An Alternative Lubricant: The Potential of Double Fractionated Palm Olein as a Lubricant for Enhanced Tribological Behaviour using a Pin-On-Disk Tribo-Tester. Journal of Oil Palm Research, 27:393-402.
Reference ID: 21949
Notes: #21949e

Marzuki N. F., Y. K. Goh, H. J. Tung, Y. K. Goh, and K. J. Goh. 2015. Evaluation of the Cultural Characteristics and Antagonistic Activities of *cladobotryum semicirculare* against *Ganoderma boninense in vitro*. Journal of Oil Palm Research, 27:326-338.
Reference ID: 21950
Notes: #21950e

Sabzoi N., E. K. Yong, N. S. Jayakumar, J. N. Sahu, P. Ganesan, N. M. Murabak, and S. A. Mazari. 2015. An Optimisation Study for Catalytic Hydrolysis of Oil Palm Shell Using Response Surface Methodology. Journal of Oil Palm Research, 27:339-351.
Reference ID: 21951
Notes: #21951e

Loh S. K., W. L. Liew, M. A. Kassim, and K. Muda. 2015. Efficiency of Nutrients Removal from Palm Oil Mill Effluent Treatment Systems. Journal of Oil Palm Research, 27:433-443.
Reference ID: 21952
Notes: #21952e

Zamri-Saad M. and K. Azhar. 2015. Issues of Ruminant Integration with Oil Palm Plantation. Journal of Oil Palm Research, 27:299-305.
Reference ID: 21953
Notes: #21953e
Abstract: The National Agricultural Policy identified integration of ruminant with plantation as an important strategy to increase beef production. Thus, the national beef production was forecasted to increase from 9500 t in 2005 to 20 200 t in 2010 while the numbers of cattle should reach 1 million by 2015. This follows integration of 739 600 ha of plantation with ruminant. A further increase to 2.2. million hectares for livestock integration should spearhead beef production towards self-sufficiency. Integration with ruminant provides additional income and biological control of weeds thus, reduces chemical contamination. Despite the efforts to promote livestock integration, the idea did not really take off. The managements of established

plantations remain focused on palm oil production claiming that livestock integration distracted them from that primary function. Therefore, livestock integration system should be reviewed to encourage small planters' participation via modifications of the current 'on-farm' or 'farm within plantation' integration where all activities are carried out in the same farm to 'between-farm' integration where each farm concentrates on a specific output with exchanges of resources between farms or farmers. However, 'between-farm' integration requires modification of the current policy on livestock-crop integration. Furthermore, it requires close coordination for successful and sustainable venture.

Soh A. C., S. Walker, T. Mahamooth, and C. K. Wong. 2015. Breeding for Sustainability in Oil Palm. Pages 5-9 MPOB, Malaysia.
Reference ID: 21954
Notes: #21954e > S 8.1.1. #21481e
Abstract: Agricultural sustainability is underpinned by the three interlocking pillars of Profit, Planet and People. Hitherto the profit sustainability of the oil palm crop has driven growers to plant and replant the monocrop intensively and extensively on new land some invariably with suboptimal agro-ecological conditions. The profit sustainability of established plantations is rapidly undermined by the scarcity of labour particularly for harvesting, rising costs of fertilizer and energy and increasing incidence and severity of biotic (pest and disease especially Ganoderma disease) and abiotic stress damage (storm, flood, heat and drought) as predicted by the climate change scenarios. The Green Revolution derived from the breeding of super yielding wheat, rice and maize varieties has been based on high fertilizer, irrigation and chemical pesticide inputs made possible then with cheap energy. The cultivars have been planted repeatedly and extensively as monocultures for ease of mechanized harvesting and cultivation. Oil palm breeding essentially followed this lead. The future scenario is one with high energy and fertilizer prices. A large part of the fertilizer applied is also lost from the land and pollutes the environment. These together with expected increased frequency of extreme weather conditions, means that new palm varieties should be pursued. The aim should be that these new palm varieties should be high yielding, more efficient in resource use (nutrients, water, light, soil), resistant to Ganoderma and other potential pests and diseases, resilient to extreme weather stresses and can be planted in different cropping systems that encourage biodiversity. The traits sought for resource use efficiency and tolerance or resilience are complex and interlinked with the crop's photosynthesis, respiration and transpiration processes that interact with the environment. Nevertheless, plant scientists have started investigations into some of the key steps in these processes for potential genetic manipulation besides understanding the processes better by modelling plant and crop species e.g. leaf stomata opening and closing, water and nutrient absorption and mobilization by root, C3 and C4 carbon assimilation systems, N-fixation. Likewise studies should also be made on the palm interactions with above and below ground biota and the processes which have bearing on soil and plant health. These will eventually have applicability in oil palm breeding. A more immediate and pragmatic field approach would be to assemble and test diverse genotypes (germplasm, varieties and breeding lines) under different agro-ecological conditions and cropping systems of commercial planting interest. Crop models can help in the preliminary selection of the germplasm or genotype treatments to match with the sites' agro-ecological conditions. As a subsequent step, the development of breeding programmes *in situ* to achieve the ideotype based on site yield potential rather than the maximum yield (potential yield or genetic yield potential) can be

pursued. Parallel physiological and molecular studies on the genotypes can be done under controlled environment conditions to understand the underlying processes better. Recombinant inbred lines and near isogenic lines are ideal for such tests, studies and rapid cultivar development.
Rapid methods such as genomics-assisted breeding (combination of conventional breeding with genomic tools) of developing such genotypes in oil palm are available. More accurate field phenotypic tools for measuring and subsequent development of selection aids for such physiological traits currently being developed in other crops will have applicability in oil palm.
Collaborative efforts among agronomists, crop physiologists and modellers, biotechnologists and breeders are needed to expedite the development of sustainable high yielding and resource use efficient varieties for various multi-cropping system. High oil yielding high harvest indexed palms with smaller canopies borne on short sturdy trunks and well-anchored with strong roots spreading wider and deeper would form the ideotype traits for most situations.

IPNI. Nutri-Facts No.1: Nitrogen. 2015. North America, IPNI.
Reference ID: 21955
Notes: #21955e

IPNI. Nutri-Facts No 2: Phosphorus. 2015. North America, IPNI.
Reference ID: 21956
Notes: #21956e

IPNI. Nutri-Facts No 3: Potassium. 2015. North America, IPNI.
Reference ID: 21957
Notes: #21957e

IPNI. Nutri-Facts No 4: Sulfur. 2015. North America, IPNI.
Reference ID: 21958
Notes: #21958e

IPNI. Nutri-Facts No 5: Calcium. 2015. North America, IPNI.
Reference ID: 21959
Notes: #21959e

IPNI. Nutri-Facts No 6: Magnesium. 2015. North America, IPNI.
Reference ID: 21960
Notes: #21960e

IPNI. Nutri-Facts No 7: Boron. 2015. North America, IPNI.
Reference ID: 21961
Notes: #21961e

IPNI. Nutri-Facts No 8: Zinc. 2015. North America, IPNI.
Reference ID: 21962
Notes: #21962e

IPNI. Nutri-Facts No 9: Manganese. 2015. North America, IPNI.
Reference ID: 21963
Notes: #21963e

IPNI. Nutri-Facts No 10: Copper. 2015. North America, IPNI.
Reference ID: 21964
Notes: #21964e

IPNI. Nutri-Facts No 11: Chloride. 2015. North America, IPNI.
Reference ID: 21965
Notes: #21965e

IPNI. Nutri-Facts No 12: Iron. 2015. North America, IPNI.
Reference ID: 21966
Notes: #21966e

IPNI. Nutri-Facts No 13: Molybdenum. 2015. North America, IPNI.
Reference ID: 21967
Notes: #21967e

IPNI. Nutri-Facts No 14: Silicon. 2015. North America, IPNI.
Reference ID: 21968
Notes: #21968e

IPNI. Nutri-Facts no 15: Cobalt. 2015. North America, IPNI.
Reference ID: 21969
Notes: #21969e

IPNI. Nutri-Facts No 16: Nickel. 2015. North America, IPNI.
Reference ID: 21970
Notes: #21970e

IPNI. Nutri-Facts No 17: Selenium. 2015. North America, IPNI.
Reference ID: 21971
Notes: **#21971e**

ISP. The Planter January 2015. [91 No 1066], 1-66. 2015. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 21972
Notes: S serial #21972 Vol 91 No 1066
Abstract: In this Issue:
Editorial: Flipping Through 2014
Technical: Dry Matter Production of *Hevea* Clone PB 260 - Chan Weng Hoong & Ong Tee San (**#21990**)
Reproduced: Effect of Complex-diverse Microbial Ecosystem Application (Bio-fertiliser) on Vegetative Growth of Oil Palm Seedlings - Dwi Lestari, Ruli Wandri & Dorothy Sarim (**#21991**)
Planters' Write: Unfolding the Indonesian Saga - At the crossroads: Episode 13 - Dr Sasidaran S.S. From Electronics Engineering to LISP - Lee Teck Fah

ISP. The Planter November 2014. [90], 793-856. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 21973
Notes: S serial #21973 Vol 90 No 1064
Abstract: In this Issue:
Editorial: Brain Drain in the Planting Industry
Technical: The Combination Effect of MSMA and Diuron in Controlling Glyphosate Resistant Eleusine indica in Oil Palm Plantation - Mohd Hefni Rusli, Idris Abu Seman, Norman Kamarudin & Sim Khay Chuan
Reproduced: Plantation Industry: Challenges Faced by Smallholders - Sharifuddin Abdul Hamid
Planters' Write: Chris Hoh and the SLDB Cessna - Moray K Graham
General: In Memory: Aloysius Siow Kwee Fook

ISP. The Planter October 2014. [90], 707-786. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 21974
Notes: S serial #21974 Vol 90 No 1063
Abstract: In this Issue:
Editorial: Planters' Loyalty and Retention Strategy in the Planting Industry
Technical: Effect of Reactive Phosphate Rock and Its NKMg Fertilisers under Two Placement Methods on Oil Palm Yield - Lee Chin Tui, Izwanizam Arifin, Tan Choon Check, Suhaidi Hamzah, Zaharah Abdul Rahman & Mohamed M Hanafi
Reproduced: Palm Oil Marketing: New Money for the Players - Yusof Basiron
Planters' Write: Confessions of a Smoker - Mahbob Abdullah
General: Are You Unfairly or Unjustly Dismissed? - Lim Meng Seng, Alan

ISP. The Planter September 2014. [90], 631-702. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 21975
Notes: S serial #21975 Vol 90 No 1062
Abstract: In this Issue:
Editorial:The Rat Story in Oil Palm Continues into Twenty-first Century
Technical: The Impact of Goods and Service Tax on Plantation Industry - Koo Shuang Yen
Reproduced: Can Cattle Grazing in Mature Oil Palm Increase Biodiversity and Ecosystem Service Provision? Eleanor M Slade, Muhammad I Burhanuddin, Jean Pierre Caliman, William A Foster, Mohd Naim, Sudharto Prawirosukarto, Jake L Snaddon, Edgar C Turner & Darren J Mann Planters' Write: Fara Diba – Gordon MacQuistan
General: Professor Chin, AISP Examiner Retired - Chin Hoong Fong
Presentation of FISP Award

Wan A. J. and D. E. Pebrian. 2015. Prediction of Fuel Costs of Various Farm Machinery in Oil Palm Plantation Operations. The Planter, 91:587-600.
Reference ID: 21976
Notes: #21976 > S serial #21823
Abstract: Fuel is a key element to operate the farm machinery in oil palm plantations. Efficient fuel usage is an important aspect that needs attention in the effort to reduce production costs in oil palm plantations. Currently, estimation of fuel costs is made by using forumlas that were developed based on the data of farm machinery

operation in the USA farming system, which differs from the farming system in oil palm plantations in Malaysia. This study was conducted to develop a predictive fuel cost model for various operations in oil palm plantation. This study emphasises on the development of predictive fuel cost model for in-field fresh fruit bunch (FFB) evacuation, mainline transport, spraying and manuring operations. Factors which affect fuel cost directly were also mathematically determined to investigate their relationship. Sensitivity analysis of the predictive fuel cost model wasalso done. The data collection in this sutfy was obtained through field observations, interviews and secondary data extraction from the oil palm estate's management records. Pearson correlation analysis and multy-regression analysis were used to analyse the collected data. The Marginal Physical Product (MPP) method was used to determine the sensitivity of the models. The study has successfully developed useable predictive fuel cost modles for in-field FFB evacuation, mainline transport, spraying and manuring with regression (R^2) value of 0.945, 0.973, 0.676 and 0.870 respectively. The sensitivity analysis of each of the four predictive fuel cost models showed that all the variables correlated and were significant to the respective fuel cost will have positive impact on the fuel cost.

Mohd Said S. A. 2015. Occupational Safety and Health in Plantation Agriculture: The Malaysian Perspective. The Planter, 90:607-614.
Reference ID: 21977
Notes: #21977 > S serial #21823
Abstract: Reproduced from the 8th International Planters Conference 2015 Book, "Addressing the Triple Bottom Line: Changing Dynamics of the Oil Palm Industry The nature of work in plantations, as in the case of many agriculture settings, creates many challenges, hazards and risks in the working environment. Workers are often exposed to various kinds of work safety and health hazards, including mechanical, chemical, physical, ergonomic and psychosocial hazards. The Malaysian Government through the Department of Occupational Safety and Health (DOSH) under the Ministry of Human Resources is encouraging planters to improve occupational safety and health (OSH) by making mandatory the requirements for safety and health policy and the safety and health committee. Besides this, planters are also required to introduce self regulations such as self safety and health auditing, risk assessment and control and the mechanisation of their work processes. With respect to the law, employers and employees have an obligatory role in ensuring safety and health in their workplace. DOSH on the other hand is continuously monitoring OSH in this industry via audits and inspections. Lack of awareness in terms of the need to properly manage safety and health at the workplace is apparent, especially in smallholdings. However, with the continuous efforts of DOSH combined with the efforts from various partners, it is believed that OSH in the agriculture industry is moving forward.

Veloo R. 2015. Peat Classification and History of Organic Soils Classification in Malaysia. The Planter, 91:525-541.
Reference ID: 21978
Notes: #21978 > S serial #21822
Abstract: The paper basically enlightens the importance of soil classification system with particular emphasis on peat soil. The types of classification takes into account the geomorphology, botanical origin of the organic matter, chemical and physical characteristics and genetic processes. Peat classification systems based on the international classification systems were differentiated using the USDA soil

taxonomy and the World Resource Base system. The history of peat classification systems in Malaysia up to the latest updates are explored. The importance the Malaysian classification system which can characterise tropical peat more appropriately as compared to international systems are highlighted. The latest status of current mapping and usefulness of characterising tropical peat through classification for management purpose is also discussed.

Webber D. and L. Achanah. 2015. Environment and Sustainability - The Role of the Roundtable on Sustainable Palm Oil. The Planter, 91:549-553.
Reference ID: 21979
Notes: #21979 > S serial #21822

Paramananthan S. 2015. Oil Palm Plantings at High Altitudes. The Planter, 91:443-459.
Reference ID: 21980
Notes: #21980 > S serial #21349

Majid R. A. and E. A. Ghani. 2015. Enhancement of Land Preparation Techniques during Replanting Using GIS/UAV for Mechanisation and Optimum Planting Density. The Planter, 91:465-470.
Reference ID: 21981
Notes: #21981 > S serial #21349

Wood B. J. 2015. Oil Palm *Ganoderma* - Field Control by Field Investigation. The Planter, 91:387-392.
Reference ID: 21982
Notes: #21982 > S serial #21794

Ero M. M., R. Dikrey, C. Dewhurst, and L. J. G. Bonneau. 2015. Evaluation of Thiosultap disodium by Targeted Trunk Injection for the Control of Oil Palm Pests in Papua New Guinea. The Planter, 91:301-312.
Reference ID: 21983
Notes: #21983 > S serial #21166

Wood B. J. 2015. Oil Palm Rat Infestation - Field Control by Field Investigation. The Planter, 91:317-322.
Reference ID: 21984
Notes: #21984 > S serial #21166

Duckett J. E. 2015. Responsibilities and Duties of Junior Executives in Plantation Management. The Planter, 91:327-333.
Reference ID: 21985
Notes: #21985 > S serial #21166

Salleh H., G. Nallan, M. F. Zainal, A. Aban, and T. F. Lee. 2015. Control of *Alocasia* sp. and *Etlingera brevilabrum* in Oil Palm Plantations in the Kinabatangan Region. The Planter, 91:227-240.
Reference ID: 21986
Notes: #21986 > S serial #21165

Wood B. J. 2015. Oil Palm Insect Pests - Field Control by Field Investigation. The Planter, 91:245-256.
Reference ID: 21987
Notes: #21987 > S serial #21165

Chung G. F. 2015. The Control of Swamp Giant Rat [*Sundamys muelleri* (Jentik), Muridae, Rodentia] Infestation by Shooting. The Planter, 91:157-168.
Reference ID: 21988
Notes: #21988 > S serial #21164

Norizan M. S., M. K. Mohamad, A. A. B. Kamaruzaman, and I. Arifin. 2015. Evaluation of Organic Matter as Potting Media. The Planter, 91:101-111.
Reference ID: 21989
Notes: #21989 > S serial #21163

Chan W. H. and T. S. Ong. 2015. Dry Matter Production of *Hevea* Clone PB 260. The Planter, 91:15-25.
Reference ID: 21990
Notes: #21990 > S serial #21972

Lestari D., R. Wandri, and D. Sarim. 2015. Effect of Complex-diverse Microbial Ecosystem Application (Bio-fertiliser) on Vegetative Growth of Oil Palm Seedlings. The Planter, 91:31-36.
Reference ID: 21991
Notes: #21991 > S serial #21972

Bek-Nielsen C. 2015. Aggregated Gains from Intergrating Sustainability: Practices into the Oil Palm Business. Pages 1-53 MPOB, Kuala Lumpur.
Reference ID: 21992
Notes: #21992e > S 8.1.1 #21481e
MPOB International Palm Oil Congress and Exhibition: Agriculture, Biotechnology & Sustainability, 6-8 October 2015 Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia

Burns N. A. 2015. Future of Oleochemicals in a Resource Rich World. Pages 1-36 MPOB, Kuala Lumpur.
Reference ID: 21993
Notes: #21993e > S 8.1.1 #21481e

Yang Y. and G. J. Sun. 2015. Effects of Different Cooking Oils on the Human Serum Lipid Profile in Chinese population. Pages 1-59 MPOB, Kuala Lumpur.
Reference ID: 21994
Notes: #21994e > S 8.1.1 #21481e

Mohd Isa R. 2015. Internationalization and Internalization of the Palm Oil Industry in Malaysia: Converging towards Sustainability. Pages 1-25 MPOB, Kuala Lumpur.
Reference ID: 21995
Notes: #21995e > S 8.1.1 #21481e

Fry J. 2015. Biofuels and export taxes: Impact on the methodology of forecasting CPO prices. Pages 1-35 MPOB, Kuala Lumpor.
Reference ID: 21996
Notes: #21996e > S 8.1.1 #21481e

Idris A. S. and K. Norman. 2015. Upstream Management Practices to Reduce *Ganoderma* Disease Outbreak - The Industry's Approach. Pages 9-23 MPOB, Kuala Lumpur.
Reference ID: 21997
Notes: #21997e > S 8.1.1 #21481e

M Sabri A. Z., A. M Salleh, Y. M Sahir, and S. M Azlan. 2015. Mechanization as an Effective Solution to Manage Harvester Shortage. Pages 24-25 MPOB, Kuala Lumpur.
Reference ID: 21998
Notes: #21998e > S 8.1.1 #21481e

Mosquera M. and C. A. Fontanilla. 2015. Bud rot (BR) control technology validation in oil palm plantations from the Colombian Centra Zone. Pages 64-74 MPOB, Kuala Lumpur.
Reference ID: 21999
Notes: #21999e > S 8.1.1 #21481e

Mohd Masri M. M., S. R. Ahmad Ali, M. N. Ahmad, N. Kamarudin, and N. Kamarudin. 2015. Implementing an Intergrated Pest Management (IPM) Program for Bagworm Control at Oil Palm Smallholder Plantations in Johor, Malaysia. Pages 43-56 MPOB, Kuala Lumpur.
Reference ID: 22000
Notes: #22000e > S 8.1.1 #21481e

Lum K. Y. and S. L. Khing. 2015. Biosecurity Planning for the Malaysian Oil Palm Industry. Pages 43-55 MPOB, Kuala Lumpur.
Reference ID: 22001
Notes: #22001e > S 8.1.1 #21481e

Othman Y. 2015. Plant Biosecurity in Malaysia - Review and Implementation Strategies. Pages 57-62 MPOB, Kuala Lumpur.
Reference ID: 22002
Notes: #22002e > S 8.1.1 #21481e

Mulla D. J. and S. K. Balasundram. 2015. Advances on Hyperspectral Imaging Applications for Sustainable Oil Palm Productivity. Pages 63-64 MPOB, Kuala Lumpur.
Reference ID: 22003
Notes: #22003e > S 8.1.1 #21481e

Othman H., F. Mohd Darus, Z. Hashim, and L. Bundan. 2015. An Innovative Palm Leaning Management on Peat Soil: Unidirectional Leaning by Mechanical Force. Pages 1-34 MPOB, Kuala Lumpur.
Reference ID: 22004
Notes: #22004e > S 8.1.1 #21481e

McKenzie S. 2015. The Influence of Epigenomic Reprogramming on Crop Performances. Pages 91-94 MPOB, Kuala Lumpur.
Reference ID: 22005
Notes: **#22005e > S 8.1.1 #21481e**

Sritharan K., M. Subramaniam, and X. Arulandoo. 2015. Towards Production of Sustainable High Yielding DxP and Interspecific Hybrid Planting Material. Pages 96-97 MPOB, Kuala Lumpur.
Reference ID: 22006
Notes: #22006e > S 8.1.1 #21481e

Heslop-Harrison P. 2015. Oil Palm Molecular Cytogenetics & Genomics. Pages 98-100 MPOB, Kuala Lumpur.
Reference ID: 22007
Notes: **#22007e > S 8.1.1 #21481e**

Weckwerth W. 2015. Green Systems Biology - from single genomes, proteomes and metabolomes to ecosystems research and biotechnology. Pages 102-103 MPOB, Kuala Lumpur.
Reference ID: 22008
Notes: **#22008e > S 8.1.1 #21481e**

Parveez G. K. A., M. Y. Abdul Masani, A. M. Dayang Izawati, O. A. Rasid, B. Bahariah, M. Siti Masura, A. Nur Hanin, W. S. Wan Nur Syuhada, A. R. Nurfahisza, and I. Nor Fakhrana. 2015. Transgenic Oil Palm: Evaluation of various methods, target tissue and selection agents. Pages 1-54 MPOB, Kuala Lumpur.
Reference ID: 22009
Notes: #22009e > S 8.1.1 #21481e

Wang K. 2015. Plant Transformation in the era of genome editing. Pages 1-23 MPOB, Kuala Lumpur.
Reference ID: 22010
Notes: #22010e > S 8.1.1 #21481e

Kuntom A., W. Omar, A. Kushairi, and Y. M. Choo. 2015. MSPO - the Way to Sustainability for Smallholders. Pages 113-114 MPOB, Kuala Lumpur.
Reference ID: 22011
Notes: #22011e > S 8.1.1 #21481e

Khor Y. L. 2015. Is the High Cost of Compliance for Sustainability Certification Driving the Shift Toward Traceability? Pages 114-115 MPOB, Kuala Lumpur.
Reference ID: 22012
Notes: #22012e > S 8.1.1 #21481e

Hashim Z., V. Subramaniam, H. Muhamad, and Y. M. Choo. 2015. Water Footprint for the Production of FFB in Plantation. Pages 115-124 MPOB, Kuala Lumpur.
Reference ID: 22013
Notes: #22013e > S 8.1.1 #21481e

Suharto R. 2015. ISPO Current Progress and Future Challenges. Pages 1-18 MPOB, Kuala Lumpur.
Reference ID: 22014
Notes: #22014e > S 8.1.1 #21481e

Tang M. K. and Y. Zainal Abidin. 2015. The Conservation Efforts in Oil Palm Plantations Made by Sime Darby. Pages 125-126 MPOB, Kuala Lumpur.
Reference ID: 22015
Notes: #22015e > S 8.1.1 #21481e

Tuen A. A., N. Kamarudin, K. Haron, B. Amit, E. Michael, and I. Das. 2015. Sustaining Biodiversity in Oil Palm Dominated Landscapes. Pages 127-130 MPOB, Kuala Lumpur.
Reference ID: 22016
Notes: #22016e > S 8.1.1 #21481e

Nathan S. and W. Baya. 2015. The Role of the Malaysian Palm Oil Industry in Wildlife Conservation and Sabah's Experience: The Wildlife Rescue Unit as a Case Study. Pages 1-47 MPOB, Kuala Lumpur.
Reference ID: 22017
Notes: #22017e > S 8.1.1 #21481e

Barba J., Y. Baquero, L. Mendoza, G. Vallejo, and F. Orellana. 2015. Establishment of Inter Specific Hybrids in Ecuador, Genetic Diversity and Sustainability of Oil Palm in America. Pages 131-138 MPOB, Kuala Lumpur.
Reference ID: 22018
Notes: #22018e > S 8.1.1 #21481e

Taniwiryono D. 2015. Driving Factors for the Enhancement of Technology Adoptions among Smallholders in Indonesia to Increase Productivity. Pages 1-29 MPOB, Kuala Lumpur.
Reference ID: 22019
Notes: #22019e > S 8.1.1 #21481e

Idris A. S. and K. Norman. 2015. Update on Efficient Management of *Ganoderma* and Other Diseases in Oil Palm. Pages 1-2 Kuala Lumpur.
Reference ID: 22020
Notes: #22020
Abstract: Palm oil is an important commodity in Southeast Asia (SEA) especially to the world's two largest palm oil producing countries, Malaysia and Indonesia. Rapid growth of the oil palm industry has contributed to the fast movement and distribution of pests and diseases from other region. Being a major economic crop in this region and other parts of the world, the awareness, detection, control and management of oil palm pests and diseases are becoming a great importance. Pests and diseases still pose a serious threat to oil palm plantations that required advanced knowledge and tools for their management. With the increase in hectarage of oil palm planted areas, there is a major concern on the outbreak of the pests and diseases which always resulted in significant loss of yields. There are many diseases of oil palm found in the producing countries. Among the major devastating oil palm diseases, basal stem rot (BSR) or Ganoderma is the only disease requiring urgent solution in SEA and also other growing countries. Other diseases (infecting seeds, nursery

seedlings and field palms) are minor with very low incidence and under control. In Malaysia, the BSR disease is having a severe impact on oil palm production in Peninsular, and is currently increasing in intensity in Sabah and Sarawak. In 2010, the incidence of BSR disease was 3.71% and affected areas was 59,148 hectare (out of 1.569 m ha surveyed). Losses due to *Ganoderma* disease is estimated about RM1.5 billion. Four species of *Ganoderma (G. boninense*, *G. zonatum*, *G. miniatocinctum* and *G. tornatum)* have been identified to be associated with BSR disease. The first three species were proved pathogenic to oil palm, while *G. tornatum* was not pathogenic.

Tek J. 2015. Food for Thought for Planters Today: Know the Past, Understand the Present, Shape the Future or Get Stuck in the Middle. Pages 1-11.
Reference ID: 22021
Notes: #22021e

Veloo R. 2015. Peat Soil Characteristics and their Influences on Oil Palm Yield and Cost of Development on Sarawak Peat. Pages 1-13.
Reference ID: 22022
Notes: #22022e

Tan J. S. 2015. Breeding for disease resistant (*Ganoderma boninense*) varieties. Pages 1-25.
Reference ID: 22023
Notes: #22023e

Pramananthan S. 2015. Soil Management Practices for Sustainable Oil Palm Cultivation on Peat. Pages 1-53.
Reference ID: 22024
Notes: #22024e

MOSTA. 2015. Best Practices to Realize the Yield Potential of Oil Palm Planting: Session 5: OP Milling and End Use. Pages 1-25 MOSTA, Sarawak.
Reference ID: 22025
Notes: #22025e

ISP. The Planter August 2014. [90], 553-622. 2014. Kuala Lumpur, ISP.
Reference ID: 22026
Notes: S serial #22026 Vol 90 No 1061
Abstract: In this Issue:
Editorial: Getting Our Act Together: Sustaniability in the Malaysian Palm Oil Industry
Technical: Palm Oil at the Crossroads: the Role of *Plantation Intelligence* to Support Change, Profit and Sustainability
Reproduced: The Biodiversity and Ecosystem Function in Tropical Agriculture (BEFTA) Project
Planters' Write: In the Shadow of Gunung Ledang
General: A Perspective on the Multiple Benchmarks for Sustainable Palm Oil
Book Review: Pictorial Guide to Common Weeds of Plantations and Their Control

ISP. The Planter June 2014. [90], 391-472. 2014. Kuala Lumpur, ISP.
Reference ID: 22027
Notes: S serial #22027 Vol 90 No 1059
Abstract: In this Issue:
Editorial: Additional New Potential Threat to Oil Palm
Technical: Withdrawal of Fertiliser and Its Impact on the Nutrient Status, Growth and Production of Previously Fertilised Oil Palm
Reproduced: Addressing and Managing Palm Oil Downstream Products Planters' Write: The Flood Damage
General: Mr Harold V Speldewinde - The Great Planter I Knew

Hj Jalil H. M. N. 1986. Influence of Water Table Depth on Root Growth and Development of Cocoa. Pages 157-169 *in* E Pushparajah and PSe Chew, editors. Cocoa and Coconuts: Progress and Outlook. The Incorporated Society of Planters, Kuala Lumpur.
Reference ID: 22028
Notes: #22028e > S 8.1.4 #151

Aye T. M. 2016. Field handbook - 4R Nutrient Management of Table Grape in Myanmar, IPNI, Singapore.
Reference ID: 22029
Notes: S 8.6.5 #22029e (e version in english, book version in myanmar language)

MPOC. Global Oils & Fats Business Magazine Vol 12 Issue 4 (Oct-Dec) 2015. Global Oils and Fats Business Magazine 12[4], 1-46. 2015. Selangor, Malaysia, MPOC.
Reference ID: 22030
Notes: S 19 #22030
Abstract: In This Issue:
Editorial: No 'pain-free' route to forest conservation
Cover Story: Malaysian Palm Oil - An Informed Choice
Markets: Palm Oil as Servo Valve Fluid
Market Updates: Comment: More Hot Air at Climate Change Talks? Absurd War on Palm Oil
Nutrition: India to Cut Trans Fat Limit
Sustainability: Sarawak's New Middle Class Fighting Deforestation

Abenyega O. and J. Gockowski 2001. Labor Practices in the cocoa sector of Ghana with a special focus on the role of children, Ghana.
Reference ID: 22031
Notes: #22031e

Gockowski J. and D. Sonwa. 2008. Biodiversity and Smallholder Cocoa Productions Systems in West Africa (Sustainable Tree Crops Program Working Paper Series Issue 6). STCP Working Paper Series, 1-21.
Reference ID: 22032
Notes: #22032e
Abstract: Tropical rainforests are estimated to account for more than half of the plant and animal species on earth with some estimates ranging up to 90 percent, although they only cover about seven percent of global land area. Rapid population growth in the 20th century, poverty and unregulated access to tropical forest resources are

threatening globally critical tropical forest biomes that were until recent times protected by their inaccessibility. Worldwide, the coverage of closed canopy moist tropical rainforests has declined rapidly in recent years to roughly 20 million km2 at the start of the 21st century. The destruction of approximately half of global tropical rainforest habitat in the last century has raised alarms from numerous quarters. Around the world, an estimated 27,000 species are lost each year due to the destruction of the rain forests (Wilson 2002). The single most important factor in species extinction is the destruction of habitat that occurs with forest conversion for agricultural purposes. In addition to biodiversity losses, deforestation due to land-use change is estimated to account for 17.4% of annual global greenhouse gas emissions (Nabuurs et al., 2007). The noted evolutionary biologist and conservationist, Edward O. Wilson (2002), believes the greatest and most urgent challenge facing the global environmental movement is to raise the poor of humanity to a decent standard of living without destroying most of life around us.

Gockowski J., J. Mva, S. Oduwole, and J. N. Binam. 2008. Institutional Innovation in the Credit, Input, and Cocoa Markets of West Africa (The Sustainable Tree Crops Program Working Paper Series Issue 8). STCP Working Paper Series, 1-25.
Reference ID: 22033
Notes: #22033e
Abstract: Interlinked loans intended for the purchase of agrochemicals are an institutional innovation that evolved in Nigeria and southwest Cameroon following cocoa market liberalization. Since liberalization, an estimated $30 million market for fungicides and insecticides has developed. To increase farmer access to these inputs, credit for their purchase has been interlinked to cocoa sales by networks of local buying agents employed by cocoa exporters. In the 2000/2001 season an estimated $15 million in credit was disbursed by cocoa buying agents to over 75,000 producers. The return on funds lent was estimated to range from 19 to 45% and was usually recovered by paying lower prices for the cocoa sold by the producer and/or charging higher prices for the inputs supplied on credit. The allocative efficiency of borrowers versus non-borrowers in the use of agrochemicals did not differ significantly, however the analysis suggests that farmers were overusing fungicides and under using insecticides. In the absence of effective state extension services, recommendations provided by a profit motivated private sector may overshoot the optimal level of use. Farmer training on integrated pest management and rational pesticide use could reduce the impact of this market failure. The lack of significant differences in input use efficiency between groups suggests that borrowers have successfully addressed their credit constraints. Interlinked credit between exporters, buyers, and producers is seen as a useful interim innovation that addresses fundamental problems and can support sector-specific efforts to intensify production. The development of such arrangements for other commodity sectors could lead to the eventual emergence of full service financial institutions.

Comeau L.-P., K. Hergoualc'h, J. Hartill, J. Smith, L. V. Verchot, D. Peak, and A. M. Salim. 2016. How do the heterotrophic and the total soil respiration of an oil palm plantation on peat respond to nitrogen fertilizer application? Geoderma, 268:41-51.
Reference ID: 22034
Notes: #22034e
Abstract: Increasing oil palm (OP) plantation establishment on tropical peatlands over the last few decades has major implications for the global carbon (C) budget. This study quantified total and heterotrophic soil carbon dioxide (CO2) emissions in

an industrial OP plantation (7 year old, 149 trees ha-1) on peat located in the eastern coast of the Sumatra Island (Jambi district), Indonesia, after two doses of nitrogen (N) fertilizer application at rates typical of local practice. The first dose applied inMarch 2012 (first Fertilization event FE) consisted of 0.5 kg urea per palm (equivalent to 371 kg N ha-1 at the base of the palm which when extrapolated across the plantation was 35 kg N ha-1) and the second dose applied in February 2013 (second FE) amounted to 1 kg urea per palm.
Soil CO2 fluxeswere measured using an infrared gas analyzer (IRGA) in dark closed chambers. The measurements were made daily from 1 day before to 7 days after fertilizer application. Soil heterotrophic respiration (Rh) and total soil respiration (Rs) were measured in trenched plots (where root respiration was excluded) and nontrenched plots, respectively. Concomitant with CO2 flux measurements, air and soil temperatures, rainfall and the water table level were measured. To estimate the fertilizer effect during the different times of the day, CO2 fluxes were monitored every 3 h during a 24 h period on days 2 and 3 after fertilizer application during the second FE. Shortly after fertilizer application, substantial pulses of CO2 were detected in the IRGA chambers where the fertilizer was applied. Even though the fertilized area represents 9.4% of the plantation area only, the impact of fertilizer application at the plantation scale on CO2 fluxes was noteworthy when compared to non-fertilized control treatments. The Rs was 36.9 kg CO2–C ha-1 (7 days)-1 greater in the fertilized than in the nonfertilized plots after the first FE but no enhancement was observed after the second FE (-72.2 kg CO2–C ha-1 7 days-1). The Rh was 340.5 and 98.9 kg CO2–C ha-1 (7 days)-1 greater in the fertilized than in the nonfertilized plots after the first and second FE, respectively. The larger CO2 flux enhancement in Rh as compared to Rs may be the result of fertilizer uptake by the palm roots in the un-trenched plots, while in the trenched ones where roots were absent, microorganisms used the fertilizer to accelerate soil organic matter mineralization. Although the response of Rh to N addition and the priming effect were high as compared to results in the literature, the impacts were short-term only and may not have implications on the annual C budget of the plantation.

IPNI. Better Plants With Plant Food (2012 through 2014). [96, 97, 98]. 2016. GA, USA, IPNI.
Reference ID: 22035
Notes: S #22035

Simanjuntak R. 2012. Smart New Vision. Agroasia, 29-35.
Reference ID: 22036
Notes: H 8.1.1.11 #22036
Abstract: Palm oil tycoon Franky Widjaja of PT SMART is leading a push to help increase the yields of smallholder oil palm farmers as he preaches a new vision for sustainable agriculture development.

Hoong H. W. 2011. Some Approaches for the Conservation and Enhancement of Biodiversity in the Oil Palm Plantations in Sabah. The Planter, 87:907-920.
Reference ID: 22037
Notes: H 8.1.1 #22037
Abstract: Oil palm is an important crop especially to the welfare of many rural communities in this country both in terms of employment and economic activities. The extensive clearing of land for oil palm plantations will affect the biodiversity that is unique to that particular area. However, there are legislations and good

agricultural practices in oil palm cultivation which promote conservation and sustainability. These include legislation to forbid any disturbances to the riparian reserve in land development. Good agricultural practices like zero-burning during land preparation stage, adopting effective soil conservation measures, planting of leguminous cover crops and beneficial plants to enhance biodiversity, integrated pest and disease management practices which promote ecological balance etc, are widely practices among well managed plantations. The preservation of high conservation value areas is one of the key critieria in the Roundtable on Sustainable Palm Oil certification. To achieve zero discharge from the production of palm oil, mill by-products like empty fruit bunches and palm oil mill effluents are recycled back to the field as a source of plant nutrient. The industry in collaboration with universities and other stakeholders like WWF have initiated various researches on biodiversity conservation and also rehabilitation programme for some of the degraded land to reverse them back to jungle.

Austin K., S. Sheppard, and F. Stolle. 2012. Indonesia's Moratorium on New Forest Concessions: Key Findings and Next Steps. World Resources Institute Working Paper, February 2012:1-8.
Reference ID: 22038
Notes: H 26.1.3 #22038
Abstract: The Indonesian moratorium on the award of new licenses in primary natural forests and peat lands, announced in May 2011, is an important step for improving management of forest resources by 'pausing' business-as-usual and allowing time to implement reforms. To quantify the moratorium's coverage, exemptions, encroachments, and additionality (i.e., whether the moratorium extends protection to land not already protected), the World Resources Institute (WRI) analyzed the indicative moratorium map released by the Ministry of Forestry in July 2011. The objective of the analysis was to better characterize the moratorium;s potential impacts and identify opportunities for improvement.

Broich M., M. Hansen, F. Stolle, P. Potapov, B. A. Margono, and B. Adusei. 2011. Remotely sensed forest cover loss shows high spatial and temporal variations across Sumatera and Kalimantan, Indonesia 2000-2008. Environmental Research Letters, 6:1-9.
Reference ID: 22039
Notes: H 26.1.3 #22039

Spencer, C. C. and Chong, M. P. Agricultural Products: Asia Insight: Cost of Sustainability, No Longer an Option. 1-47. 2013. Singapore, Morgan Stanley Research Asia/Pacific.
Reference ID: 22040
Notes: H 8.1.1 #22040
Abstract: Record haze in 2013 will lead to greater regulation and higher costs for many palm oil producers. Whilst SIME looks most advanced, WIL (OW) is a close no.2 and its shares are 20% cheaper. However, we downgrade AALI and GENP to UW and lower our industry views to Cautious and In-Line.

MPOC. Global Oils & Fats Business Magazine Vol 10 Issue 3 (July-Sept) 2013. Global Oils and Fats Business Magazine 10[3], 1-52. 2013.
Reference ID: 22041
Notes: S 19 #22041
Abstract: In this issue:
Editorial: European Parliament rejects ILUC move
Cover Story: EU votes on ILUC
Comment: France: New Tax on Palm Oil?
Markets: Palm Oil under Threat in Belgium
India: Cooking Oil Imports Surge
News Briefs:
Biofuels: Europe's Green Maask
Branding: Paying the Price Viral Attacks on Social Media
Advertorial: Risk Management 1.01
Nutrition: Preventing Kidney Stones Dried Fruits for Instant Energy Food Technology: Technical Advances in the Food Industry

C & CI and C. C&CI: Coffee and Cocoa International May 2011. Coffee & Cocoa International 38[2], 7-50. 2011.
Reference ID: 22042
Notes: S serial #22042
Abstract: In this issue:
Climate Change: A new project that was launched early in April is designed to help coffee farmers 'retool' in order to adapt to the effects of climate change
Vietnam: Coffee farmers in Vietnam have been withholding coffee in anticipation of higher prices
Vietnam: Vietnam is fast emerging as a leading producer of cocoa
Robusta: A Fine Robusta projects aims to do for Robusta what specialty coffee projects have achieved for high quality Arabica
International: Coffee prices may be at historic highs but producers seem in no rush to invest in increasing production
South Korea: Consumption in South Korea continues to increase and although mainly a soluble market is seeing increased interest in higher quality products
In-Plant Materials Handling: Cablevey in the US has recently supplied conveying equipment for coffee and for cocoa
In-Plant Materials Handling: Spiroflow has launched a new range of conveying equipment
What the Papers Say: Pollination may play a much important role in cocoa production than hitherto understood
European Import Facilities: Warehouse keeper C Steinweg Handelsveem has adopted a temperature controlled regime in its warehouses to combat pests in soft commodities

ISP. The Planter November 2015. 1076[91], 715-782. 2015. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22043
Notes: S serial #22043
Abstract: In this Issue:
Editorial: El Nino and Its Direct and Indirect Impact on Oil Palm
Technical: Investigations into the Correction of Iron Deficiency in Second Generation Oil Palm Replants in Mature Organic Soils in Indonesia **#22047**

Reproduced: Soil Acidification under Oil Palm: Rates and Effects on Yield **#22048**
Planters' Write: A Grand Old Man of Borneo

ISP. The Planter December 2015. 1077[91], 788-852. 2015. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22044
Notes: S serial #22044
Abstract: In this Issue:
Editorial: Reflections
Technical: Herbicide Screening for the Control of *Merremia peltata* (L.) Merr. in Immature Oil Palm Plantings **#22049**
Reproduced: Leaf Nutrient Analysis as a Management Tool in Yield Intensification of Oil Palm **#20186**
Planters' Write: Made at Ulu Bernam
General: The Planter Interview: Professor Mohd Khanif Yusop

Brandi C., T. Cabani, C. Hosang et al. 2013. Sustainability Certification in the Indonesian Palm Oil Sector: Benefits and challenges for smallholders, DIE (Gernan Development Institute), Bonn, Germany.
Reference ID: 22045
Notes: #22045e

Brandi C., T. Cabani, C. Hosang, S. Schirmbeck, L. Westermann, and H. Wiese. 2015. Sustainability Standards for Palm Oil: Challenges for Smallholder Certification Under the RSPO. Journal of Environment & Development, 1-23.
Reference ID: 22046
Notes: #22046e
Abstract: This article investigates the integration of smallholders into voluntary certification schemes, exemplified by smallholder certification under the Roundtable on Sustainable Palm Oil in Indonesia (RSPO). It identifies the main barriers to the adoption of standards by smallholders and the specific compliance challenge in the context of RSPO smallholder certification, thereby contributing to the growing literature on the effectiveness of voluntary sustainability standards. It discusses findings on smallholder certification, focusing on antecedent variables as potential adoption determinants at the level of smallholders, smallholder organization, and the institutional context. The empirical findings suggest that smallholders, and specifically independent smallholders, often lack both the information and the degree of organization that certification demands. The article also identifies the most important compliance challenges for independent smallholders in relation to land titles, seedlings, pesticide usage, fertilization, and documentation and outlines how smallholders can be supported so that they can be included in certification schemes.

Rambe E. F., M. Sidhu, E. Wahyudi, N. S. Fazilla, A. Aziz, Z. Sinuraya, and M. Sharma. 2015. Investigations into the Correction of Iron Deficiency in Second Generation Oil Palm Replants in Mature Organic Soils in Indonesia. The Planter, 91:727-756.
Reference ID: 22047
Notes: #22047 > S serial #22043

Nelson P. N., T. Rhebergen, S. Berthelsen, M. J. Webb, M. Banabas, T. Oberthür, C. R. Donough, Rahmadsyah, K. Indrasuara, and A. Lubis. 2015. Soil Acidification under Oil Palm: Rates and Effects on Yield. The Planter, 91:757-767.
Reference ID: 22048
Notes: #22048 > S serial #22043

Balasubramaniam R. and B. Wijayanto. 2015. Herbicide Screening for the Control of *Merremia peltata* (L.) Merr. in Immature Oil Palm Plantings. The Planter, 91:799-808.
Reference ID: 22049
Notes: #22049 > S serial #22044

ISP. The Planter January 2010. 1006[86], 1-70. 2010. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22050
Notes: S serial #22050
Abstract: In this Issue:
Editorial: Time to Reflect
Technical: Workers' Physiological Impact in the Oil Palm Cultivations in Malaysia **#22051**
Reproduced: Life Cycle Inventory of the Production of Crude Palm Oil - A Gate to Gate Case Study of 12 Palm Oil Mills **#20088**
Planters' Write: Lingering Memories - On the Shores of 'The Land Below the Wind': Part 5

Pebrian D. E., A. Yahya, and T. C. Siang. 2010. Workers' Physiological Impact in the Oil Palm Cultivations in Malaysia. The Planter, 86:15-32.
Reference ID: 22051
Notes: #22051 > S serial #22050

MD Noor M. R., S. K. Rosli, H. Othman, M. H. Harun, and A. T. Hashim. 2010. Physiological Evaluations of Selected Clonal Oil Palm on Shallow Peat in Teluk Intan, Perak. The Planter, 86:83-98.
Reference ID: 22052
Notes: #22052 > S serial #18062

Sundram S., F. Abdullah, Z. A. M. Ahmad, and U. K. Yusuf. 2010. Efficacy of Single and Mixed Treatments of *Trichoderma harzianum* as Biocontrol Agents of *Ganoderma* Basal Stem Rot in Oil Palm. The Planter, 86:99-119.
Reference ID: 22053
Notes: #22053 > S serial #18062

Sivapragasam A., A. Ngalim, B. Razali, and M. S. Sukaime. 2010. Field Trapping of the Adult Red Stripe Weevil, *Rhynchophorus vulneratus* (Panzer) with an Aggregation Pheromone in a Coconut Ecosystem. The Planter, 86:173-186.
Reference ID: 22054
Notes: #22054 > S serial #18065

ISP. The Planter April 2010. 1009[86], 215-278. 2010. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22055
Notes: S serial #22055
Abstract: In this Issue:
Editorial: Need to Ensure Fertiliser's Quality and Standards in Malaysia
Technical: Chlorantraniliprole: A Novel Insecticide for Bagworm (*Metisa plana*) Control in Oil Palm Plantation **#22056**
Reproduced: Replanting and Rehabilitation of Coconut under Smallholders **#22057**
Planters' Write: Lingering Memories - On the Shores of "The Land Below the Wind": Part 8

Chua C. K., K. E. Ooi, A. R. Razak, P. G. Marcon, and K. L. Lee. 2010. Chlorantraniliprole: A Novel Insecticide for Bagworm (*Metisa plana*) Control in Oil Palm Plantation. The Planter, 86:223-242.
Reference ID: 22056
Notes: #22056 > S serial #22055

Husen A. R., C. H. Hassan, and M. I. Ab Hamid. 2010. Replanting and Rehabilitation of Coconut under Smallholders. The Planter, 86:243-257.
Reference ID: 22057
Notes: #22057 > S serial #22055

ISP. The Planter May 2010. 1010[86], 287-364. 2010. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22058
Notes: S serial #22058
Abstract: In this Issue:
Editorial: Looking at Biodiversity Conservation
Technical: Indication of Soil Organic Carbon Augmentation in Oil Palm Cultivated Inland Mineral Soils of Peninsular Malaysia **#22059**
Reproduced: Recent Developments in Research on Coconut at MARDI **#22060**
Planters' Write: Lingering Memories - On the Shores of "The Land Below the Wind": Part 9
General: Biodiversity and Conservation in Plantations

Mathews J., T. H. Tan, and K. M. Chong. 2010. Indication of Soil Organic Carbon Augmentation in Oil Palm Cultivated Inland Mineral Soils of Peninsular Malaysia. The Planter, 86:293-320.
Reference ID: 22059
Notes: #22059 > S serial #22058

Sivapragasam A. and P. Mansor. 2010. Recent Developments in Research on Coconut at MARDI. The Planter, 86:321-337.
Reference ID: 22060
Notes: #22060 > S serial #22058

Poh W. H. 2010. Water Management Techniques - A Practical Experience at Foong Lee Plantations. The Planter, 86:381-400.
Reference ID: 22061
Notes: #22061 > S serial #21157

Xavier A., B. Musa, N. Sundian, and P. Joel. 2010. Production, Agro-management and Perfornance of MATAG Hybrids. The Planter, 86:401-411.
Reference ID: 22062
Notes: #22062 > S serial #21157

Mohd Nasir A. R., F. Y. Foo, and M. F. Hafifi Romli. 2010. Strategy to Manage Herbicide Resistant *Eleusine indica* in an Oil Palm Nursery in Jerantut Area. The Planter, 86:459-472.
Reference ID: 22063
Notes: #22063 > S serial #21158

Goldthorpe C. C. 2010. The Development of the Rubber Manufacturing Industrial Sector in Malaysia. The Planter, 86:473-488.
Reference ID: 22064
Notes: #22064 > S serial #21158

D'Nathan R. R. 2010. Re-vitalizing the Coconut Industry in Malaysia - Policies and Strategies for Implementation. The Planter, 86:489-498.
Reference ID: 22065
Notes: #22065 > S serial #21158

Veloo R. and P. Selamat. 2010. Development of Oil Palm on Peat: A Socio-economic Perspective. The Planter, 86:537-556.
Reference ID: 22066
Notes: #22066 > S serial #21159

Abdullah M. 2010. Raising Performance Through Improved Professionalism. The Planter, 86:557-566.
Reference ID: 22067
Notes: #22067 > S serial #21159

Davidson L. 2010. Save the Jungle, Plant Palms. The Planter, 86:567-573.
Reference ID: 22068
Notes: #22068 > S serial #21159

Chuah T. S. and I. Sahid. 2010. The Status of Weed Resistance in Plantation Crops in Malaysia. The Planter, 86:615-626.
Reference ID: 22069
Notes: #22069 > S serial #21160

Arancon Jr. R. N. 2010. Global Trends and New Opportunities for the Coconut Industry. The Planter, 86:627-646.
Reference ID: 22070
Notes: #22070 > S serial #21160

Islam N., M. A. T. Sohel, M. N. Alam, S. Akther, and F. Begum. 2010. Effects of Poultry Manure as a Supplement to Chemical Fertilisers in Sugarcane. The Planter, 86:689-698.
Reference ID: 22071
Notes: #22071 > S serial #21790

Wong C. C. and K. Hishamuddin. 2010. A Blunder or Miracle Crop: *Jatropha curcas* Dilemma in the Tropics. The Planter, 86:757-770.
Reference ID: 22072
Notes: #22072 > S serial #21161

Mathews J., T. H. Tan, K. K. Yong, K. M. Chong, S. K. Ng, and W. M. Ip. 2010. Managing Oil Palm Nursery: IOI's Experience. The Planter, 86:771-790.
Reference ID: 22073
Notes: #22073 > S serial #21161

Hanun M. H., A. T. Mohammad, M. R. MD Noor, A. K. Din, J. Latiff, A. R. Abdullah Sani, and R. Abdullah. 2010. Impact of El Ninõ Occurrence on Oil Palm Yield in Malaysia. The Planter, 86**:**837-856.
Reference ID: 22074
Notes: #22074 > S serial #21162

Chung G. F. 2010. Weed and Cover Crop Management in Oil Palm. The Planter, 86:857-877.
Reference ID: 22075
Notes: #22075 > S serial #21162

ISP. The Planter January 2012. 1030[88], 1-80. 2010. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22076
Notes: S serial #22076
Abstract: In this Issue:
Editorial: Urgent Need to Safeguard Oil Palm from Exotic Diseases
Technical: Challenges to Banana Production in Malaysia: A Threat to Food Security **#22077**
Global Warming - Is It Real, and Should We Worry? **#22078**
Planters' Write: Rose Chan and the Black Balls
General: The Planter Interview - J R Gilbert

Mohamad Roff M. N., T. M. Tengku Abdul Malik, and H. Sharif. 2012. Challenges to Banana Production in Malaysia: A Threat to Food Security. The Planter, 88:13-28.
Reference ID: 22077
Notes: #22077 > S serial #22076

Corley R. H. V. 2012. Global Warming - Is It Real, and Should We Worry? The Planter, 88:29-61.
Reference ID: 22078
Notes: #22078 > S series #22076

ISP. The Planter February 2012. 1031[88], 91-156. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22079
Notes: S series #22079
Abstract: In this Issue:
Editorial: Quality Human Capital for Plantation Industry
Technical Scientific: Integrated Pest Management of *Tirathaba* Bunch Moth on Oil Palm Planted on Peat **#22080**

Technical Popular: Creating Shared Value in Oil Palm Smallholder Schemes in Indonesia - Experiences from PT Muslim Mas Group Plantations **#22081**
Reproduced: Plantation Labour: Need for Management Strategy **#18960**
Planters' Write: John Galpine and the Magic Kris
General: The ISP-UPM Collaboration in Master in Plantation Management Programme

Lim K. H. 2012. Integrated Pest Management of *Tirathaba* Bunch Moth on Oil Palm Planted on Peat. The Planter, 88:97-108.
Reference ID: 22080
Notes: #22080 > S series #22079

Gan L. T. 2012. Creating Shared Value in Oil Palm Smallholder Schemes in Indonesia - Experiences from PT Muslim Mas Group Plantation. The Planter, 88:109-124.
Reference ID: 22081
Notes: #22081 > S series #22079

ISP. The Planter March 2012. 1032[88], 165-224. 2016. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22082
Notes: S serial #22082
Abstract: In this Issue:
Editorial: *Ganoderma* - A "Wake-up" Call
Technical Scientific: Effect of Commercial Hormones on Rooting Cuttings of *Acacia* Hybrid Clones **#22083**
Technical Popular: Invertebrate Pests of Oil Palm in the Provinces of West New Britain and New Ireland, Papua New Guinea and Aspects of their Management **#22084**
Planters' Write: "Those Were the Days" - A Further Tale from a More Distant Planting Age: The Phantom
Unfolding the Indonesian Saga - The Overseas Mission: Episode 1

Aminah H., A. Mohd Zaki, M. Mohd Noor, M. S. Ahmad Fauzi, Y. Zuhaidi, and A. G. Ab Rasip. 2012. Effect of Commercial Hormones on Rooting Cuttings of *Acacia* Hybrid Clones. The Planter, 88:173-184.
Reference ID: 22083
Notes: #22083 > S serial #22082

Dewhurst C. F. 2012. Invertebrate Pests of Oil Palm in the Provinces of West New Britain and New Ireland, Papua New Guinea, and Aspects of their Management. The Planter, 88:185-203.
Reference ID: 22084
Notes: #22084 > S serial #22082

ISP. The Planter April 2012. 88[1033], 235-294. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22085
Notes: S serial #22085
Abstract: In this Issue:
Editorial: Be Prepared to Deal with South American Oil Palm Bud Rot
Technical: Maximising Oil Palm Yield by High Density Planting and Thinning **#22086**
Planters' Write: Unfolding the Indonesian Saga - A Daunting Task: Episode 2 Forgotten Hero of Tongod
General: Minor Components in Palm Oil

Palat T., N. Chayawat, and R. H. V. Corley. 2012. Maximising Oil Palm Yield by High Density Planting and Thinning. The Planter, 88:241-260.
Reference ID: 22086
Notes: #22086 > S serial #22085

ISP. The Planter May 2012. 1034[88], 300-366. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22087
Notes: S serial #22087
Abstract: In this Issue:
Editorial: Microbes as Biological Fungicide in Root Disease Control
Technical: An Evaluation of *ganoderma* Fungal Colonisation Using Ergosterol Analysis and Quantification **#22088**
Planters' Write: Unfolding the Indonesian Saga - A Major Development: Episode 3 The Management Clubs on Estates
General: The Planter Interview - Mr Tan See Yeok FISP
Basic Oleochemicals and Its Applications

Chong K. P. 2012. An Evaluation of *Ganoderma* Fungal Colonisation Using Ergosterol Analysis and Quantification. The Planter, 88:311-322.
Reference ID: 22088
Notes: #22088 > S serial #22087

Virdiana I., J. Flood, B. Sitepu, Y. Hasan, R. Aditya, and S. Nelson. 2012. Integrated Disease Management to Reduce Future *Ganoderma* Infection During Oil Palm Replanting. The Planter, 88:383-398.
Reference ID: 22089
Notes: #22089 > S serial #21837

Mandeville P., U. S. Hadi, W. Wibowo, and M. W. Adhyani. 2012. Improvement in Quality and Availability of Remote Sensing Data for Oil Palm Plantation Mapping. The Planter, 88:397-412.
Reference ID: 22090
Notes: #22090 > S serial #21837

ISP. The Planter July 2012. 1036[88], 445-520. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22091
Notes: S serial #22091
Abstract: In this Issue:
Editorial: The Future Direction of Plantation Business
Technical: The Stability of Altered Forest Ecosystems Project: Investigating the Design of Human-Modified Landscapes for Productivity and Conservation **#22092**
Reproduced: Drivers and Challenges in the Plantation Industry in the Next Decade **#19259**
Planters' Write: Unfolding the Indonesian Saga - Momentous Development: Episode 5 Memories of a Malaysian Research Officer of the Old School
General: Presentation of the FISP Award

Turner E. C., Y. Zainal Abidin, H. Barlow, T. M. Fayle, M. H. Hj Jaafar, V. K. Chey, J. Larenus, A. Nainar, G. Reynolds, Y. Yusof, M. S. Khoo, and R. M. Ewers. 2012. The Stability of Altered Forest Ecosystems Project: Investigating the Design of Human-Modified Landscapes for Productivity and Conservation. The Planter, 88:453-472.
Reference ID: 22092
Notes: #22092 > S serial #22091

ISP. The Planter August 2012. 1037[88], 530-600. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22093
Notes: S serial #22093
Abstract: In this Issue:
Editorial: Professional Development Programmes for Plantation Sector
Technical: Occurrence of Common Weeds in Immature Plantings of Oil Palm Plantations in Malaysia **#22094**
Reproduced: Role of Biotechnology in Improving Oil Palm Productivity **#22095**
Planters' Write: Unfolding the Indonesian Saga - The Untoward Incidents: Episode 6 The Second Dam
General: The Planter Interview: Ong Beng Kee

Mohamed M. S. and I. Abu Seman. 2012. Occurrence of Common Weeds in Immature Plantings of Oil Palm Plantations in Malaysia. The Planter, 88:537-550.
Reference ID: 22094
Notes: #22094 > S serial #22093

Sambanthamurthi R., A. P. G. Kadir, R. Singh, M. O. Abdullah, and L. E. T. Low. 2012. Role of Biotechnology in Improving Oil Palm Productivity. The Planter, 88:551-569.
Reference ID: 22095
Notes: #22095 > S serial #22093

ISP. The Planter September 2012. 1038[88], 605-684. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22096
Notes: S serial #22096
Abstract: In this Issue:
Editorial: Are We Any Wiser About Bud Rot of Oil Palm?
Technical: Evaluating the Growth Performance of 4-year-old *Neolamarckia cadamba* Plantings in Malaysia **#22097**
Reproduced: R&D in Transformation Programme for the Neutral Rubber Industry **#22098**
Planters' Write: Carry on Planting
General: Guide to Writing Scientific Papers - Part 1

Yahya A. Z. 2012. Evaluating the Growth Performance of 4-year-old *Neolamarckia cadamba* Plantings in Malaysia. The Planter, 88:617-628.
Reference ID: 22097
Notes: #22097 > S serial #22096

Md Said M. A. and E. Abd Ghani. 2012. R&D in Transformation Programme for the Natural Rubber Industry. The Planters, 88:629-648.
Reference ID: 22098
Notes: #22098 > S serial #22096

Cheong Y. L. and C. C. Tey. 2012. Understanding Pest Biology and Behaviour for Effective Control of Oil Palm Bagworms. The Planter, 88:699-720.
Reference ID: 22099
Notes: #22099 > S serial #21838

Suhardi E. 2012. Plantations Development in Indonesia: Strategies and Prospects. The Planter, 88:721-729.
Reference ID: 22100
Notes: #22100 > S serial #21838

ISP. The Planter November 2012. 1040[88], 775-852. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22101
Notes: S serial #22101
Abstract: In this Issue:
Editorial: Urgent Need for a Rountable for Food Quality for Sustainable Health (RFQSH)
Technical: Evaluation of Several Chemical Control Approaches against Bagworm, *Metisa plana* Walker (Lepidopterea:Psychidae) in FELDA Oil Palm Plantations
Reproduced:
Planters' Write: Sad Solomon Islands Songs
General: Refining of Palm Oil
A Reflection of the Plantation Industry - Its Origin, Quest and Challenges: Part 2
Record Yield in Oil Palm Achieved by Woman Farmer in Karnataka, India

Salim H. and N. H. Hamid. 2012. Evaluation of Several Chemical Control Approaches against Bagworm, Metisa Plana Walker (Lepidopterea:Psychidae) in FELDA Oil Palm Plantations. The Planter, 88:777-852.
Reference ID: 22102
Notes: #22102 > S serial #22101

ISP. The Planter December 2012. 1041[88], 855-932. 2012. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22103
Notes: S serial #22103
Abstract: In this Issue:
Editorial: Fake Agricultural Chemicals Specifically Pesticides
Technical: Effect of Nitrification Inhibitors on Yield and Yield Attributes of T.Aman Rice Varieties
Reproduced: Increased and Sustained Yields in Oil Palm through Recycling of Biomass into the Fields
Planters' Write: Chap Puteh Whisky Galore
General: Illegal Pesticides Threaten Food Safety and Food Security in Malaysia A Reflection of the Plantation Industry - Its Origin, Quest and Challenges: Part 3

Razzak M. A., A. K. M. Z. Hossain, M. M. Rahman, S. K. Debsharma, and C. Roy. 2012. Effect of Nitrification Inhibitors on Yield and Yield Attributes of T.Aman Rice Varieties. The Planter, 88:865-878.
Reference ID: 22104
Notes: #22104 > S serial #22103

Hashim K., R. Kumaran, and S. Su. 2012. Increased and Sustained Yields in Oil Palm through Recycling of Biomass into the Fields. The Planter, 88:879-902.
Reference ID: 22105
Notes: #22105 > S serial #22103

Choo Y. M. 2015. Revolutionising the Palm Oil Industry through Genome Technology. PIPOC, Kuala Lumpur.
Reference ID: 22106
Notes: #22106 > S 8.1.1. #21481 Abstract only

Sun G. J., Y. Yang, S. Ma, H. Zhou, S. Wang, H. Tang, F. Wang, Y. Yang, H. Zhu, and L. Yang. 2015. Effects on the Human Serum Lipid Profile of Palm olein and Olive Oil in Chinese Population: a Randomized, Double-Blind, Cross-over Trial. Page xiii-xvi PIPOC, Kuala Lumpur.
Reference ID: 22107
Notes: #22107 > S 8.1.1 #21481

Cristancho R. J. A., L. A. Santacruz, G. Rosero, and R. Dominguez. 2015. Leaf Nutrient Content Variability and Nutrient Requirement of OxG Oil Palm Hybrids. Page 25 PIPOC, Kuala Lumpur.
Reference ID: 22108
Notes: #22108 > S 8.1.1 #21481

ISP. The Planter Vol 92 No 1078 January 2016. 1078[92], 1-50. 2016. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22109
Notes: S serial #22109
Abstract: In this Issue:
Editorial: Exploring Politics in Plantation Organisations
Technical: Nutrient Requirements for Sustainable Sugarcane Production
Reproduced: Changes in Soil Quality Indicators under Oil Palm Plantations Receiving Best Management Practices
Planters' Write: William Hilston and the Northeast Monsoon

Alam K. M., S. M. Bokhtiar, and G. C. Paul. 2016. Nutrient Requirement for Sustainable Sugarcane Production. The Planter, 92:17-24.
Reference ID: 22110
Notes: #22110 > S serial #22109
Abstract: A field study was conducted to determine the appropriate fertiliser rate for highest sugarcane yield and maximum economic return at High Ganges River Floodplain soils in Bangladesh.

Pauli N., C. Donough, T. Oberthür, J. Cock, R. Verdooren, Rahmadsyah, G. Abdurrohim, K. Indrasura, A. Lubis, T. Dolong, J. M. Pasuquin, and M. Fisher. 2016. Changes in Soil Quality Indicators under Oil Palm Plantations Receiving Best Management Practices. The Planter, 92:29-37.
Reference ID: 22111
Notes: #22111 > S serial #22109
Abstract: The effect of best management practices (BMPs) to intensify oil palm production and improve yield were evaluated in Indonesia and Malaysia. While no clear, consistent differences were found in the soil properties between BMP and reference (REF) treatments over four years, improvements in soil pH and %soil organic carbon (SOC) were recorded for both treatments. The study found no significant deterioration in the measured soil properties over the four years, suggesting that appropriate management practices for oil palm can improve several aspects of soil quality.

Mohd Abidin M., A. Z. Baihaki, M. Saberioon, and M. Mardan. 2015. From Precision Plantation Preparation to Management via Drone-Enabled GIS Mapping and Remote Sensing. Pages 73-86 PIPOC, Kuala Lumpur.
Reference ID: 22112
Notes: #22112 > S 8.1.1 #21481
Abstract: Malaysia is one of the leading palm oil countries in Asia. Due to the importance of oil palm to the country, accurate and reliable information is needed not only for maintaining oil palm plantations but also increasing the profitability and improve the management.

Ong-Abdullah M., J. M. Ordway, N. Jiang, S. E. Ooi, S. Y. Kok, N. Sarpan, N. Azimi, A. T. Hashim, Z. Ishak, S. K. Rosli, F. A. Malike, N. A. Abu Bakar, M. Marjuni, N. Abdullah, Z. Yaakub, M. D. Amiruddin, R. Nookiah, R. Singh, L. E. T. Low, K. L. Chan, N. Azizi, S. W. Smith, B. Bacher, M. A. Budiman, A. Van Brunt, C. Wischmeyer, M. Beil, M. Hogan, N. Lakey, C. C. Lim, X. Arulandoo, C. K. Wong, C. N. Choo, W. C. Wong, Y. Y. Kwan, S. S. R. Syed Alwee, R. Sambanthamurthi, and R. A. Martienssen. 2015. *MANTLED*: What Goes Around...Comes Around. Page 95 PIPOC, Kuala Lumpur.
Reference ID: 22113
Notes: #22113 > S 8.1.1 #21481e (abstract only)
Abstract: The appeal of having increased oil yield of 20-30% through cloning of elite oil palms was enough to encourage the sprouting of tissue culture laboratories and the plantation industry to invest in large-scale production

Parveez G. K. A., M. Y. Abdul Masani, A. M. Dayang Izawati, B. Bahariah, M. Siti Masura, A. Nur Hanin, W. S. Wan Nur Syuhada, A. R. Nurfahisza, I. Nor Fakhrana, F. H. Lim, S. Ravigadevi, G. Noll, and D. Pruefer. 2015. Transgenic Oil Palm: Recent Developments and the Way Forward. Page 104 PIPOC, Kuala Lumpur.
Reference ID: 22114
Notes: #22114 > S 8.1.1 #21481 (abstract only)
Abstract: Research on transgenic oil palm began in the early 1990s. Production of putative transgenic oil palm using microprojectile bombardment and Agrobacterium tumefaciens-mediated methods has been reported.

Low L. E. T., K. L. Chan, M. A. Ab Halim, C. Wischmeyer, S. W. Smith, P. Ponomarenko, T. Tatarinova, R. Rosli, N. Azizi, N. S. Nik Mohd Sanusi, A. S. Abdul Razak, R. Nookiah, L. C. L. Ooi, S. E. Ooi, A. Budiman, J. M. Ordway, R. Singh, N. Lakey, P. L. Chan, M. Hogan, B. Bacher, R. A. Martienssen, M. Ong-Abdullah, and R. Sambanthamurthi. 2015. Oil Palm Genome Assembly, Annotation and Visualisation. Page 101 PIPOC, Kuala Lumpur.
Reference ID: 22115
Notes: #22115 > S 8.1.1 #21481e (abstract only)
Abstract: Palm oil and palm kernel oil represents about 38% of the world vegetable oil production. Nevertheless, to meet the future global demand for food and fuel, the sustainability and productivity of oil palm has to be improved.

Reynolds G. and J. Lucey. 2015. Managing Biodiversity in Plantation Landscapes. Page 109 PIPOC, Kuala Lumpur.
Reference ID: 22116
Notes: #22116 > S 8.1.1 #21481e (abstract only)
Abstract: This presentation summarises work carried out in Sabah through SE Asia Rainforest Research Partnership - a multi-disciplinary research programme initiated by the UK's Royal Society in 1985.

Lee W. W., B. H. Kwan, E. P. Kok, S. S. Tee, P. L. Cheong, and S. C. Cheah. 2015. Establishing the Ganoderma Reference Genome. Pages 139-142 PIPOC, Kuala Lumpur.
Reference ID: 22117
Notes: #22117 > S 8.1.1 #21481e
Abstract: Basal stem rot (BSR) of oil palm (Elaeis Guineensis) is caused by the basidiomycete white rot fungal pathogen, Ganoderma boninense, and commercially, it is one of the most devastating diseases in the oil palm industry in Southeast Asia. The incidence of Ganoderma infestation is becoming more prevalent after each generation of replanting, resulting in economic losses due to significant reduction in fresh fruit bunch production and bunch number.

Tengoua F. F., M. Musa Hanafi, A. S. Idris, and S. R. Syed-Omar. 2015. Activity of Phenylalanine Ammonia-Lyase, Peroxidase and Laccase in Roots of Oil Palm Progenies with Different Basal Stem Rot Status. Pages 3-11 PIPOC, Kuala Lumpur.
Reference ID: 22118
Notes: #22118 > S 8.1.1 #21482e
Abstract: Phenylalanine ammonia-lyase (PAL), peroxidase (POX) and laccase (LAC) activities were investigated at 6-7 months and 16-17 months in the roots of six oil palm progenies to see whether differences in susceptibility/tolerance to ganoderman infection of these progenies could be related to their inherent enzyme activity.

Intan Nur Ainni M. A., R. Vasagi, A. S. Idris, and S. Shamala. 2015. Bioprospecting of Phytophthora palmivora: Morphology and Phylogenetics analysis with reference to Colombian Bud Rot Phytophthora Isolates. Pages 12-25 PIPOC, Kuala Lumpur.
Reference ID: 22119
Notes: #22119 > S 8.1.1 #21481
Abstract: Oil palm cultivation in South America, namely Colombia is seriously being crippled by a disease known as bud rot and Phytophythora palmovira (P.palmivora) has been identified as the causal pathogen.

Madihah A. Z., A. S. Idris, S. K. P. Wey, M. H. Norhisham, and M. I. Siti Fatimah. 2015. Development of Reverse Transcription - Loop Mediated Isothermal Amplification for Orange Spotting-Coconut Cadang-cadang Viroid (CCCVd) Variants in Oil Palm. Pages 26-31 PIPOC 2015, Kuala Lumpur.
Reference ID: 22120
Notes: #22120 > S 8.1.1 #21481e
Abstract: Orange spotting (OS) diease casued by Coconut Cadang-cadang Viroid (CCCVd) is a major coconut disease in Philippines.

M Shahul Hameed R. B., A. S. Idris, M. S. Mohamed, A. Kushairi, M. D. Amiruddin, and M. Marjuni. 2015. Three Methods for Screening of Oil Palm Resistance to *Ganoderma* Disease. Pages 32-42 PIPOC, Kuala Lumpur.
Reference ID: 22121
Notes: #22121 > S 8.1.1 #21482
Abstract: Ganoderma basal stem rot (BSR) fungal disease has caused substantial loss in South East Asia's oil palm industry. Research in controlling the disease has been an ongoing probe. In long term strategies, the use of resistant planting materials offers the greatest hope for the control of BSR disease.

Nuranis I., S. Kamaruzaman, A. Khairulzmazmi, I. Mohd Syukri, H. Zulkifli, and A. S. Idris. 2015. Leaf Nutrient Status in Relation to Severity of *Ganoderma* Infection in Oil Palm Seedling Artificial Infected with *Ganoderma boninense* Using Root Inoculation Technique. Pages 43-52 PIPOC, Kuala Lumpur.
Reference ID: 22122
Notes: #22122 > S 8.1.1 #21482
Abstract: Basal stem rot (BSR), casued by ganoderma spp., a basidiomycete fungus, is a major devastating disease of oil palm, especially in Malaysia and Indonesia. Several factors were reported to influence the outbreak of BSR disease which includes nutrient status, age of palm, types of soil, previous crop, types of soil and replanting techniques.

Mohd Shukri I., A. S. Idris, M. A. Izzuddin, N. Kamaruddin, M. H. Otar, N. I. Zainal Bidin, K. Hashim, and H. Abu Bakar. 2015. Ground Survey of *Ganoderma* Disease in Oil Palm Planted By Smallholders in Malaysia. Pages 53-58 PIPOC, Kuala Lumpur.
Reference ID: 22123
Notes: #22123 > S 8.1.1 #21482
Abstract: A survey on status of basal stem rot (BSR) or Ganoderma disease of oil palm planted by smallholders in Malaysia under the Skim Tanam Semula Sawit Pekebun Kecil (TSSPK) was conducted by MPOB.

Nurrashyeda R., A. S. Idris, K. Norman, D. Kushairi, W. M. Wan Azha, and T. Charles. 2015. GanoEF Biofertilizer as Preventive Treatment of *Ganoderma* Disease in Oil Palm - Nursery and Field Evaluation. Pages 59-65 PIPOC, Kuala Lumpur.
Reference ID: 22124
Notes: #22124 > S 8.1.1 #21482
Abstract: A study was conducted to investigate GanoEF biofertilizer as preventive treatment of Ganoderma in oil palm.

Sharifah Muzaimah S. A., A. S. Idris, A. Z. Madihah, A. Kushairi, K. Norman, K. Hamirin, and W. H. Wan Ismail. 2015. Evaluation of EMBIO actinoPLUS for Biological Control of *Ganoderma* Disease in Oil Palm: Nursery and Field Results. Pages 66-72 PIPOC, Kuala Lumpur.
Reference ID: 22125
Notes: #22125 > S 8.1.1 #21482
Abstract: A potential actinomycete isolate, Streptomyces GanoSA1 was identified as competent biological control in reducing Ganoderma disease in oil palm.

Goh Y. K., Y. K. Goh, N. F. Marzuki, T. K. Goh, H. J. Tung, S. S. Tan, T. N. Mahamooth, W. C. Wong, and K. J. Goh. 2015. *Ganoderma boninense* - Harbour for Various Fungicolous Fungi. Pages 73-78 PIPOC, Kuala Lumpur.
Reference ID: 22126
Notes: #22126 > S 8.1.1 #21482
Abstract: Mycophilic or fungicolous fungi can be categorized into a few common groups, namely neutralism, mutualism, antagonism, competition, and mucoparasitism.

Goh Y. K., T. K. Goh, N. F. Marzuki, H. J. Tung, Y. K. Goh, and K. J. Goh. 2015. A New Endophytic *Xylogone* Species (Anamorph *Scytalidium parasiticum*) as Potential Biocontrol Agent for *Ganoderma boninense* in Oil Palm. Pages 79-85 PIPOC, Kuala Lumpur.
Reference ID: 22127
Notes: #22127 > S 8.1.1 #21482
Abstract: Mycoparasitism is a unique interaction between a fungus with another fungus. In one of the experiments conducted in 2013 to study the aggressiveness of various isolates of Ganoderma boninense pat. on oil palm seedlings in Malaysia, a hitherto undescribed cleistothecial ascomycete (AAX0113) was found to proliferate aggressively, producing brown to dark brownish fruiting bodies, on pure culture of G.boninense.

Jelani A. R., M. I. K. Azaman, M. R. Ahmad, and A. R. Shuib. 2015. Quality Testing Laboratory For The Oil Palm Motorised Cutter. Pages 86-92 PIPOC, Kuala Lumpur.
Reference ID: 22128
Notes: #22128 > S 8.1.1 #21482
Abstract: Malaysian Palm Oil Board (MPOB) has developed a hand-held motorized harvesting tool called Cantas, for fresh fruit bunches (FFB) harvesting. Several local and foreign companies have been licensed to manufacture and market this technology.

Khudri N. A. F. R. S., W. A. Azmi, N. Kamarudin, S. R. Ahmad Ali, and R. Moslim. 2015. Production of Malaysian indigenous *Oryctes* Nudivirus on Insect Cell Line DSIR-HA-1179. Pages 93-101 PIPOC, Kuala Lumpur.
Reference ID: 22129
Notes: #22129 > S 8.1.1 #21482
Abstract: The Oryctes nudivirus or previously known as Oryctes baculovirus is a biocontrol agent for rhinoceros beetle, Oryctes rhinoceros. The production of three types of the Oryctes nudivirus (Type A, B, and C) on insect cell line, DSIR-HA-1179 was studied.

Pong K. K., W. A. Azmi, N. Kamarudin, S. R. Ahmad Ali, and R. Moslim. 2015. Isolation and Morphological Characeristics of Entomopathogenic Fungi Isolated from Mineral and Peat Soils in Oil Palm Plantations in Malaysia. Pages 102-111 PIPOC, Kuala Lumpur.
Reference ID: 22130
Notes: #22130 > S 8.1.1 #21482
Abstract: Isolation of entomopathogenic fungi from mineral and peat soils was conducted using a simple selective media. Mineral soils were sampled from MPOB Research Station Hulu Paka in Terengganu and peat soils were sampled from MPOB Research Station Teluk Intan in Perak,

Kamarudin N., S. R. Ahmad Ali, M. M. Mohd Masri, M. N. Ahmad, C. A. H. Che Manan, and N. Hj Kamarudin. 2015. Controlling *Metisa plana* Walker (Lepidoptera Psychidae) Outbreaks at Estate in Slim River, Perak using *Bacillus thuringiensis*. Pages 112-117 PIPOC, Kuala Lumpur.
Reference ID: 22131
Notes: #22131 > S 8.1.1 #21482
Abstract: A study on the impact of Bacillus thuringiensis (Bt) against the bagworm species, Metisa plana was carried out at estate in Slim River Perak. Results showed

that larval population reduced from average 187.1 larvae per frond (LPF) at eight days prior to treatment to 77.6 LPF at 14 days after treatment (DAT) with 58.5 reduction after the first generation of aerial spray conducted on the 11th march 2013.

Chairul E. O. and C. C. Chua. 2015. Correction of Magnesium Deficiency in Oil Palm on Hilly and Steep Terrain. Pages 118-122 PIPOC, Kuala Lumpur.
Reference ID: 22132
Notes: #22132 > S 8.1.1 #21482
Abstract: In oil palm, requirement of magnesium (Mg) for fresh fruit bunch (FFB) production, oil synthesis and vegetative growth is second only to nitrogen (N) and potassium (K). In view of the high requirement, it is not uncommon to observe oil palm displaying visual symptoms of Mg deficiency especially on light textured soils particularly where the top soil has been eroded and soil exchangeable Mg is below 0.20 cmol per kg.

Mahamooth T. N., S. S. Tan, G. A. T. Petronella, P. H. C. Ng, N. Fazilah, N. Ain, N. Hafizah, T. Rajamudiandy, A. Zulkarnaen, and K. J. Goh. 2015. Spatial Variation of Microbial Dynamics in an Oil Palm Ecosystem - The Establishment of Soil Microbial Indicators and Their Interactions with Soil Physical and Chemical Properties. Pages 123-130 PIPOC, Kuala Lumpur.
Reference ID: 22133
Notes: #22133 > S 8.1.1 #21482
Abstract: Various microbial parameters have been developed for the purpose of monitoring soil biological activity but there remains no standardised guidelines on the minimum indicators or parameters that should be tested.

Astari S., K. J. Goh, and S. Y. Tan. 2015. Efficacy of Silica Application for the Protection against Termite *Coptotermes curvignathus* in Mature Oil Palms on Peat Soil. Pages 131-136 PIPOC, Kuala Lumpur.
Reference ID: 22134
Notes: #22134 > S 8.1.1 #21482
Abstract: A trial was carried out to test the efficacy of silica application for protection against termite coptotermes curvignathus, an important pest of oil palms, in mature oil palm plantation in peat area.

Agustiana S., R. Wandri, and B. Kartiwa. 2015. Increasing Productivity of Oil Palm Seed Garden through Irrigation Techniques during Water Deficit Period. Pages 137-142 PIPOC, Kuala Lumpur.
Reference ID: 22135
Notes: #22135 > S 8.1.1 #21482
Abstract: PT. Binasawit Makmur was one of the top oil palm seed producers in Indoneisa. The seed garden was located in Surya Adi Estate, South Sumatra. This area had frequently experienced an extreme rainfall fluctuation.

Cahyo S. A. and R. Wandri. 2015. Variability in Oil Bunch under Rainfall Event. Pages 143-149 PIPOC, Kuala Lumpur.
Reference ID: 22136
Notes: #22136 > S 8.1.1 #21482
Abstract: Variation of oil bunch production is commonly found in oil palm mill. The main factor influencing the variation is harvesting management and environment. When rainfall is the main of environmental factors affected.

Lestari D., R. Wandri, and D. Asmono. 2015. Study of Soil Nutrition Availability under Various Forms of Empty Fruit Bunch Application. Pages 150-155 PIPOC, Kuala Lumpur.
Reference ID: 22137
Notes: #22137 > S 8.1.1 #21482
Abstract: The forms of empty fruit bunch depend on operational technology adopted by plantation.

Mohamed M. S., M. Dickinson, and A. S. Idris. 2015. Analysis of Genetic Variation in *Phytophthora palmivora*, the Causal Agent of Bud Rot Disease of Oil Palm. Pages 156-163 PIPOC, Kuala Lumpur.
Reference ID: 22138
Notes: #22138 > S 8.1.1 #21482
Abstract: Bud rot disease has been considered as a devastated disease of oil palm in Latin America.

Sugiharti M., C. Prihatna, A. Fortunatus, I. S. Hartali, and A. Suwanto. 2015. A Rapid Diagnostic Assay of *Ganoderma* Disease in Oil Palm Seedlings. Pages 164-170 PIPOC, Kuala Lumpur.
Reference ID: 22139
Notes: #22139 > S 8.1.1 #21482
Abstract: Basal stem rot (BSR) diseases caused by Ganoderma boninense has been a major threat to oil palm plantation.

Mohamed S. A., Z. Masijan, R. Moslim, M. R. Sulaiman, and S. T. Chua. 2015. Field Evaluation of entomopathogenic fungi and chemical to control termite, *Coptotermes curvignathus* on supply seedlings and mature oil palms on peat in Sarawak. Pages 171-178 PIPOC, Kuala Lumpur.
Reference ID: 22140
Notes: #22140 > S 8.1.1 #21482
Abstract: Evaluation of chemical Fipronil and two entomophatogenic fungi, Beauveria bassiana and Metarhizium anisopliae to control termite, Coptotermes curvignathus on young supply seedlings and infested matured oil palms were studied.

Woittiez L. S., M. Slingerland, and K. E. Giller. 2015. Yield Gaps in Indonesian Smallholder Plantations: Causes and Solutions. Pages 179-190 PIPOC, Kuala Lumpur.
Reference ID: 22141
Notes: #22141 > S 8.1.1 #21482
Abstract: Indonesian oil palm smallholder farmers often achieve yields of only 10-15 ton of fresh fruit bunches per hectare, roughly half the 20-25 ton per hectare achieved by some large plantations, indicating the existence of a large yield gap.

Rusli M. H., A. S. Idris, N. Kamarudin, and K. C. Sim. 2015. The Combination Effect of MSMA and Diuron in Controlling Glyphosate Resistant *Eleusine indica* in Oil Palm Plantation. Pages 191-195 PIPOC, Kuala Lumpur.
Reference ID: 22142
Notes: #22142 > S 8.1.1 #21482, S serial #21973
Abstract: Goosegrass (Eleusine indica) is one of the weeds that has problem associated with herbicide resistance. E. indica is normally controlled by herbicides such as glyphosate.

Ahmad M. N., S. R. Ahmad Ali, and M. A. Hassan. 2015. Evaluation of Physico-chemical Changes During Composting of Chipped-Ground Oil Palm Frond and Palm Oil Mill Effluent. Pages 202-206 PIPOC, Kuala Lumpur.
Reference ID: 22143
Notes: #22143 > S 8.1.1 #21482
Abstract: The aim of this study was to investigate the physicochemical changes during composting of chipped-ground oil palm frond (CG-OPF) and palm oil mill effluent (POME).

Maidin M. S. T., S. Safari, S. A. Bakeri, and S. R. Ahmad Ali. 2015. Assessing Culturable Prokaryotes in Sarawak's Deep Peat Oil Palm Plantation by using 16S rDNA Techniques. Pages 207-213 PIPOC, Kuala Lumpur.
Reference ID: 22144
Notes: #22144 > S 8.1.1 #21482
Abstract: Peatlands play an important role and function in socio-economic well-being of the country.

Masijan Z., A. G. Sintik, S. A. Mohamad, N. Kamarudin, S. R. Ahmad Ali, S. T. Chuan, R. Moslim, and S. N. Ahmad. 2015. Evaluation of Chemical Insecticides and Biological Agents to Control Bunch Moth, *Tirathaba Rufivena* in Young Oil Palm Area in Sarawak, Malaysia. Pages 214-221 PIPOC, Kuala Lumpur.
Reference ID: 22145
Notes: #22145 > S 8.1.1 #21482
Abstract: Tirathaba rufivena is a major insect pest of oil palm planted in peat in Sarawak in Malaysia. High numbers of larvae were found infesting the post anthesised male inflorescences as compared to female inflorescences and fruit bunches.

Salehan N. M. and N. H. Hamid. 2015. Isolation and Screening of Entomopathogenic Isolates for the Development of Biological Control Agent against *Metisa plana*. Pages 222-228 PIPOC, Kuala Lumpur.
Reference ID: 22146
Notes: #22146 > S 8.1.1 #21482

Lee T. F., A. Aban, K. B. Phor, and H. Salleh. 2015. Reduced Fertilizer Rounds Trial: Comparison between Compound and Mixture Fertilizers in High Rainfall Environment. Pages 229-232 PIPOC, Kuala Lumpur.
Reference ID: 22147
Notes: #22147 > S 8.1.1 #21482

Salleh H., G. Nallan, M. F. Zainal, A. Aban, and T. F. Lee. 2015. Control of *Alocasia* sp. and *Etlingera brevilabrum* in Oil Palm Plantations in Kinabatangan Region. Pages 233-238 PIPOC, Kuala Lumpur.
Reference ID: 22148
Notes: #22148 > S 8.1.1 #21482

Hadali H., S. N. A Majid, G. Nallan, and T. F. Lee. 2015. Identification of Etiolated Palms for Thinning via IFSAR. Pages 239-242 PIPOC, Kuala Lumpur.
Reference ID: 22149
Notes: #22149 > S 8.1.1 #21482

Hussin S. H., Z. Sapak, A. S. Idris, and M. H. Rusli. 2015. *In vitro* Studies on Effect of Selected Herbicides on Growth of *Ganoderma* Causal Pathogen of Basal Stem Rot Disease in Oil Palm. Pages 243-250 PIPOC, Kuala Lumpur.
Reference ID: 22150
Notes: #22150 > S 8.1.1 #21482

Tee S. S., M. K. Mohamad Jalil, and S. C. Cheah. 2015. Ganoderma - Causal Agent of Upper Stem Rot in Oil Palm. Pages 251-257 PIPOC, Kuala Lumpur.
Reference ID: 22151
Notes: #22151 > S 8.1.1 #21482

Khor S. E., N. A. Abdul Rahim, M. H. Samsudin, P. L. Cheong, M. L. Chong, and S. C. Cheah. 2015. Enhancement of Plant Growth in the Nursery using Beneficial Microbes. Pages 258-261 PIPOC, Kuala Lumpur.
Reference ID: 22152
Notes: #22152 > S 8.1.1 #21482

Prasetyo A. E. and A. Susanto. 2015. Second Leap of *Elaeidobius kamerunicus* Faust in Indonesia. Pages 262-271 PIPOC, Kuala Lumpur.
Reference ID: 22153
Notes: #22153 > S 8.1.1 #21482

Zainal Abidin C. M. R. and N. H. Hamid. 2015. Composition and Distribution of Small Rodents in FGV's Oil Palm Regions in Borneo. Pages 272-276 PIPOC, Kuala Lumpur.
Reference ID: 22154
Notes: #22154 > S 8.1.1 #21482

Rashid Y. and N. H. Hamid. 2015. Efficacy of *Bacillus thuringiensis* (Bt) Products in Controlling Bagworm Infestation, *Metisa plana* and its Non-target Effect on Pollinator *Elaeidobius kamerunikus* Population in Oil Palm. Pages 277-285 PIPOC, Kuala Lumpur.
Reference ID: 22155
Notes: #22155 > S 8.1.1 #21482

Lestari D., R. Wandri, and D. Sarim. 2015. Effect of Bio-fertilizer on Vegetative Growth of Oil Palm of Oil Palm Seedling. Pages 286-291 PIPOC, Kuala Lumpur.
Reference ID: 22156
Notes: #22156 > S 8.1.1 #21482

Tan C. C., I. Arifin, and M. S. Norizan. 2015. Influence of Nitrogen Sources in Combination with Soil Type on Oil Palm Seedling Growth. Pages 292-297 PIPOC, Kuala Lumpur.
Reference ID: 22157
Notes: #22157 > S 8.1.1 #21482

Maidin M. S. T., S. Safari, N. A. Abu Ghani, S. A. Syed Ibrahim, S. A. Bakeri, and S. R. Ahmad Ali. 2015. Prokaryotic Population in Primary and Logged-over Deep Peat Forest. Pages 298-306 PIPOC, Kuala Lumpur.
Reference ID: 22158
Notes: #22158 > S 8.1.1 #21482

Izzuddin M. A., N. M. Nisfariza, and A. S. Idris. 2015. Application of Hyperspectral Field Spectroscopy for Detection of *Ganoderma* Disease in Oil Palm. Pages 307-314 PIPOC, Kuala Lumpur.
Reference ID: 22159
Notes: #22159 > S 8.1.1 #21482

Bakeri S. A., S. R. Ahmad Ali, S. Safari, and M. S. T. Maidin. 2015. Underground Prokaryotic Biodiversity under Oil Palm Plantation on Alluvial Soil at Belaga Sarawak. Pages 315-323 PIPOC, Kuala Lumpur.
Reference ID: 22160
Notes: #22160 > S 8.1.1 #21482

Latif S. 2015. Effect of Corona Glow Discharge Plasma Irradiation on the Growth of Oil Palm Seedling (*Elaeis guineensis* Jacq.). Pages 324-331 PIPOC, Kuala Lumpur.
Reference ID: 22161
Notes: #22161 > S 8.1.1 #21482

Susanto A., A. E. Prasetyo, H. Priwiratama, and S. Wening. 2015. Improvement of Artificial Innoculation of *Ganoderma boninense* in Oil Palm Seedling. Pages 332-342 PIPOC, Kuala Lumpur.
Reference ID: 22162
Notes: #22162 > S 8.1.1 #21482

Tung H. J., Y. K. Goh, K. J. Goh, and W. C. Wong. 2015. The Diverse Soil and Trunk 'Bacteriomes' in Relation to Basal Stem Rot Disease on Oil Palm. Pages 343-348 PIPOC, Kuala Lumpur.
Reference ID: 22163
Notes: #22163 > S 8.1.1 #21482

Ooi S. E., N. Heamaashini, I. Feshah, M. Ong-Abdullah, and C. C. Lim. 2015. Expression Changes of Auxin-responsive Genes as Indicators for Embryogenesis Potential in Oil Palm. Pages 349-359 PIPOC, Kuala Lumpur.
Reference ID: 22164
Notes: #22164 > S 8.1.1 #21482

Abdul Masani M. Y., G. Noll, G. K. A. Parveez, N. Yazid, R. Sambanthamurthi, and D. Pruefer. 2015. Plant Regeneration from Oil Palm Protoplasts Derived from Suspension Culture. Pages 359-364 PIPOC, Kuala Lumpur.
Reference ID: 22165
Notes: #22165 > S 8.1.1 #21482

Tarmizi A. H., M. Y. Rosli, and R. Zaiton. 2015. Maintenance of Oil Palm Culture Aggregates in MPOB-Motorized Vessel (MPOB-MotoVess) system. Pages 365-369 PIPOC, Kuala Lumpur.
Reference ID: 22166
Notes: #22166 > S 8.1.1 #21482

Dayang Izawati A. M., M. Y. Abdul Masani, G. K. A. Parveez, and I. Ismanizan. 2015. 2-deoxyglucos: An Alternative Selection Agent in Oil Palm Transformation. Pages 370-374 PIPOC, Kuala Lumpur.
Reference ID: 22167
Notes: #22167 > S 8.1.1 #21482

Shahwan S., Z. Ramli, S. Mohammed, and M. A. A. Manaf. 2015. Expression of Oil Palm Oleate Desaturase (EgFAD2) in *Arabidopsis thaliana* var. Col. Pages 375-380 PIPOC, Kuala Lumpur.
Reference ID: 22168
Notes: #22168 > S 8.1.1 #21482

Ishak N. A., N. Zain, N. L. Rozali, M. A. Halim, R. Rosli, A. Othman, U. S. Ramli, and N. I. Tahir. 2015. Construction of Integrated Oil Palm Metabolome Chemical Resources Library. Pages 381-386 PIPOC, Kuala Lumpur.
Reference ID: 22169
Notes: #22169 > S 8.1.1 #21482

Dzulkafli S. B., A. Othman, U. S. Ramli, N. I. Mhd Tahir, S. Shahwan, N. Zain, M. A. A. Manaf, A. S. Idris, and M. D. Amiruddin. 2015. Identification of Chelidonic Acid in Oil Palm Spear Leaf Artificially Infected with *Ganoderma boninense* using Liquid Chromatography-mass Spectrometry. Pages 386-391 PIPOC, Kuala Lumpur.
Reference ID: 22170
Notes: #22170 > S 8.1.1 #21482

Ting N. C., S. Mayes, F. Massawe, R. Sambanthamurthi, M. Ithnin, E.-T. L. Low, R. Rosli, K. L. Chan, K. Sritharan, C. C. Lim, X. Arulandoo, and R. Singh. 2015. QTL-Candidate Genes Associated with Fatty Acid Composition in Oil Palm. Pages 392-397 PIPOC, Kuala Lumpur.
Reference ID: 22171
Notes: #22171 > S 8.1.1 #21483

Hassan H. and U. S. Ramli. 2015. Profiling of Oil Palm Mesocarp Proteome using Gel-LC-MS/MS Analysis. Pages 398-403 PIPOC, Kuala Lumpur.
Reference ID: 22172
Notes: #22172 > S 8.1.1 #21483

Lim F. H., F. Iskandar, O. A. Rasid, A. S. Idris, G. K. A. Parveez, C. L. Ho, and N. A. Shaharuddin. 2015. Sequence Analysis and Gene Expression Study of cDNA Encoding Cyclophilin from *Ganoderma boninense*. Pages 404-408 PIPOC, Kuala Lumpur.
Reference ID: 22173
Notes: #22173 > S 8.1.1 #21483

Rozali N. L., N. A. Ramly, W. N. S. F. Wan Nawang, Z. Nurazah, O. Abrizah, A. S. Idris, A. K. Din, and U. S. Ramli. 2015. Phytochemical Investigation of Oil Palm (*Elaeis guineensis*) Strategies towards Detection and Control of Basal Stem Rot Disease. Pages 409-416 PIPOC, Kuala Lumpur.
Reference ID: 22174
Notes: #22174 > S 8.1.1 #21483

Ong P. W., K. Kamaruddin, P. L. Chan, and R. Singh. 2015. Oil Palm *Early Nodulin 93 Protein* Gene (*EgENOD93*): An Overexpression Study in Model Plant *Arabidopsis thaliana*. Pages 417-423 PIPOC, Kuala Lumpur.
Reference ID: 22175
Notes: #22175 > S 8.1.1 #21483

Lee A. P. L., M. T. Yusof, I. S. Ismail, B. Y. P. Tay, and S. Sundram. 2015. Deciphering Endophytic *Trichoderma virens* 159c Mechanisms against *Ganoderma boninense*. Pages 424-436 PIPOC, Kuala Lumpur.
Reference ID: 22176
Notes: #22176 > S 8.1.1 #21483

Indarto N., F. Wendra, Y. P. Ningrum, R. Maduma, D. Asmono, and S. Zulhermana. 2015. Advanced Performance of Sampoerna Agro DxP Semi-clone Progenies on Production and Oil Yield Character. Pages 437-444 PIPOC, Kuala Lumpur.
Reference ID: 22177
Notes: #22177 > S 8.1.1 #21483

Herrero J., Yulismawati, B. Santika, P. Erika, M. R. Sirait, Y. Puspitaningrum, F. Wendra, S. Zulhermana, E. L. de Amentia, M. Hernandez, E. Ritter, and D. Asmono. 2015. Candidate Genes Approach Association Mapping in Oil Palm. Pages 445-450 PIPOC, Kuala Lumpur.
Reference ID: 22178
Notes: #22178 > S 8.1.1 #21483

Zain N., A. S. Idris, A. K. Din, and U. S. Ramli. 2015. Hydrophilic Interaction Liquid Chromatography-mass Spectrometry in Oil Palm Metabolomics towards Understanding Basal Stem Rot. Pages 451-456 PIPOC, Kuala Lumpur.
Reference ID: 22179
Notes: #22179 > S 8.1.1 #21483

Sarpan N., M. Ong-Abdullah, and S. E. Ooi. 2015. Establishment of a ChIP Method for Oil Palm Tissues. Pages 457-462 PIPOC, Kuala Lumpur.
Reference ID: 22180
Notes: #22180 > S 8.1.1 #21483

Nor Fakhrana I., O. A. Rasid, and G. K. A. Parveez. 2015. Effective Concentration of Hygromycin for Selecting Transformed Oil Palm. Pages 473-477 PIPOC, Kuala Lumpur.
Reference ID: 22181
Notes: #22181 > S 8.1.1 #21483

Bukhari N. A., N. Abu Bakar, K. L. Soh, and M. A. Zairun. 2015. Molecular Characterisation of Bioflocculant-producing Bacteria from Palm Oil Mill Effluent. Pages 478-483 PIPOC, Kuala Lumpur.
Reference ID: 22182
Notes: #22182 > S 8.1.1 #21483

Hanin A. N., M. Y. Abdul Masani, A. G. Syahirah, and G. K. A. Parveez. 2015. Evaluation of PHB Gene Expression Driven by an Oil Palm Leaf-specific Promoter in Transgenic *Arabidopsis Thaliana* Plants. Pages 484-489 PIPOC, Kuala Lumpur.
Reference ID: 22183
Notes: #22183 > S 8.1.1 #21483

Wan Nur Syuhada W. S., O. A. Rasid, and G. K. A. Parveez. 2015. Isolation of a cDNA Clones Coding for *Elaeis oleifera Phytoene Synthase*. Pages 490-495 PIPOC, Kuala Lumpur.
Reference ID: 22184
Notes: #22184 > S 8.1.1 #21483

Bahariah B., M. Y. Abdul Masani, O. A. Rasid, and G. K. A. Parveez. 2015. Vector Construction for Transformation of Oil Palm. Pages 496-501 PIPOC, Kuala Lumpur.
Reference ID: 22185
Notes: #22185 > S 8.1.1 #21483

Subhi S. M., G. K. A. Parveez, O. A. Rasid, and E.-T. L. Low. 2015. Characterization of Oil Palm TCTP2 Promoter. Pages 502-509 PIPOC, Kuala Lumpur.
Reference ID: 22186
Notes: #22186 > S 8.1.1 #21483

Badai S. S., K. L. Chan, E.-T. L. Low, O. A. Rasid, and G. K. A. Parveez. 2015. Identification of Mesocarp-specific Genes in Oil Palm through *in silico* Expressed Sequence Tag Analysis. Pages 510-514 PIPOC, Kuala Lumpur.
Reference ID: 22187
Notes: #22187 > S 8.1.1 #21483

Nur Diyana R., A. S. Idris, and S. Shamala. 2015. RNA Extraction and Detection of Oil Palm Coconut Cadang-cadang Viroid using RT-PCR Analysis. Pages 515-521 PIPOC, Kuala Lumpur.
Reference ID: 22188
Notes: #22188 > S 8.1.1 #21483

Ochoa J. C. and H. M. Romero. 2015. Genetic Transformation of Colombian Isolates of *Phytophtora palmivora* with Fluorescent Proteins for Histological Characterization of Oil Palm Bud Rot Disease. Pages 522-527 PIPOC, Kuala Lumpur.
Reference ID: 22189
Notes: #22189 > S 8.1.1 #21483

Othman N. Q., P. Paravamsivam, J. S. Tan, Y. P. Lee, and S. S. R. Syed Alwee. 2015. Multi-gene Validation of Differential Gene Expression of Transcriptome Assembly via NanoString® Technologies Analysis Platform. Pages 528-539 PIPOC, Kuala Lumpur.
Reference ID: 22190
Notes: #22190 > S 8.1.1 #21483

Mandal G. and R. K. Mathur. 2015. Performance of Segregating *Tenera x Tenera* Population in Oil Palm. Pages 533-539 PIPOC, Kuala Lumpur.
Reference ID: 22191
Notes: #22191 > S 8.1.1 #21483

Kok S. Y., W. J. Tan, and M. Ong-Abdullah. 2015. Comparative Proteomic Analysis of Normal and Mantled Fruits of Clonal Oil Palm (*Elaeis guineensis* Jacq.). Pages 540-546 PIPOC, Kuala Lumpur.
Reference ID: 22192
Notes: #22192 > S 8.1.1 #21483

Sulaiman S., Y. P. Lee, and S. S. R. Syed Alwee. 2015. *In silico* Identification and Characterization of MADS-box Genes in *Elaeis guineensis*. Pages 547-551 PIPOC, Kuala Lumpur.
Reference ID: 22193
Notes: #22193 > S 8.1.1 #21483

Ayala-Diaz I., E. Daza, A. Tupaz, C. Fontanilla, M. Mosquera, and H. M. Romero. 2015. Productive Performance of Commercial DxP Materials under Field Conditions in the Colombian Central Zone. Pages 552-557 PIPOC, Kuala Lumpur.
Reference ID: 22194
Notes: #22194 > S 8.1.1 #21483

Arias D., M. Gonzalez, F. Prada, I. Ayala, C. Montoya, E. Daza, and H. M. Romero. 2015. Genetic Diversity of Natural Accessions of Oil Palm *Elaeis oleifera* (HBK) Cortes. Pages 558-563 PIPOC, Kuala Lumpur.
Reference ID: 22195
Notes: #22195 > S 8.1.1 #21483

Yong H. Y., S. H. Boon, K. L. Chua, S. F. Lau, W. W. Lee, B. H. Kwan, C. H. Lee, and S. C. Cheah. 2015. Predicting Genetic Potential of Oil Palm Materials using Genomic Selection Models. Pages 564-569 PIPOC, Kuala Lumpur.
Reference ID: 22196
Notes: #22196 > S 8.1.1 #21483

Low S. J., W. S. Foo, C. N. Chua, and W. W. Lee. 2015. Integrated Bioinformatics Analysis Pipeline for Oil Palm Transcriptome Data. Pages 570-575 PIPOC, Kuala Lumpur.
Reference ID: 22197
Notes: #22197 > S 8.1.1 #21483

Kok E. P., S. L. Chew, M. L. Chong, and W. W. Lee. 2015. Comparison of *De novo* Assembler Tools for Analysis of Metagenomic Data from Oil Palm Estate Soil. Pages 576-579 PIPOC, Kuala Lumpur.
Reference ID: 22198
Notes: #22198 > S 8.1.1 #21483

Cheong W. S., K. L. S. Tan, W. S. Foo, J. H. Chuah, K. S. Nyiam, W. W. Lee, K. L. Chua, C. H. Lee, and S. C. Cheah. 2015. Identification of miRNA and their Target Genes in Developing Oil Palm Fruit by Small RNA and Degradome Sequencing. Pages 580-583 PIPOC, Kuala Lumpur.
Reference ID: 22199
Notes: #22199 > S 8.1.1 #21483

Chew S. L., E. P. Kok, M. L. Chong, B. H. Kwan, and W. W. Lee. 2015. Evaluation of Data Classifiers in Oil Palm Estate Soil Metagenomic Data. Pages 584-587 PIPOC, Kuala Lumpur.
Reference ID: 22200
Notes: #22200 > S 8.1.1 #21483

Cheong P. L., W. W. Lee, S. J. Low, W. S. Foo, H. H. Teoh, and S. C. Cheah. 2015. Transcriptome Analysis of Oil Palm during Infection by *Ganoderma boninense*. Pages 588-591 PIPOC, Kuala Lumpur.
Reference ID: 22201
Notes: #22201 > S 8.1.1 #21483

Chai S. K., P. Namasivayam, C. L. Ho, M. Ong-Abdullah, and S. E. Ooi. 2015. Effects of Paclobutrazol on Oil Palm (*Elaeis guineensis*) Growth. Pages 592-594 PIPOC, Kuala Lumpur.
Reference ID: 22202
Notes: #22202 > S 8.1.1 #21483

Mohd Zaki N., R. Singh, T. Schwarzarcher, P. Heslop-Harrison, N. H. Mohd Nor, L. E. T. Low, and M. Madon. 2015. Development of Single-copy Sequence Fluorescence *in situ* Hybridization (ScFISH) of Oil Palm Chromosome 1 Cytogenetic map: A Preliminary Attempt. Pages 595-599 PIPOC, Kuala Lumpur.
Reference ID: 22203
Notes: #22203 > S 8.1.1 #21483

Fadila A. M., A. Mohd Din, N. Rajanaidu, M. Marhalil, A. Norziha, and A. Kushairi. 2015. Bunch Yield and Bunch Components of MPOB Deli *Dura* Intercrosses Based on Different Deli Populations. Pages 600-608 PIPOC, Kuala Lumpur.
Reference ID: 22204
Notes: #22204 > S 8.1.1 #21483

Nuraziyan A. and M. Ong-Abdullah. 2015. Preliminary *De novo* Assembly of Oil Palm Mitochondrial Genomes. Pages 609-612 PIPOC, Kuala Lumpur.
Reference ID: 22205
Notes: #22205 > S 8.1.1 #21483

Lee W. W., B. H. Kwan, E. P. Kok, K. L. Chua, S. H. Boon, C. H. Lee, and S. C. Cheah. 2015. *TITANIUM* - ACGT's Agricultural Technology towards Genomics Assisted Crop Improvement. Pages 613-616 PIPOC, Kuala Lumpur.
Reference ID: 22206
Notes: #22206 > S 8.1.1 #21483

Safiza M., J. Anita, A. M. Mohamad Arif, and M. A. Fazliza. 2015. Differentially Expressed Genes of *G. boninense* Naturally Infected Palms. Pages 617-621 PIPOC, Kuala Lumpur.
Reference ID: 22207
Notes: #22207 > S 8.1.1 #21483

Fazliza M. A., M. Safiza, N. A. Shaharuddin, M. F. Abdullah, and A. M. Mohamad Arif. 2015. Up-regulation of Genes Related to Pathogenicity in *Ganoderma*-infected Oil Palm: Preliminary Results. Pages 622-628 PIPOC, Kuala Lumpur.
Reference ID: 22208
Notes: #22208 > S 8.1.1 #21483

Samsul K. R., A. H. Tarmizi, I. Zamzuri, and Y. Zulkifli. 2015. Bactris Liquid Culture. Pages 629-639 PIPOC, Kuala Lumpur.
Reference ID: 22209
Notes: #22209 > S 8.1.1 #21483

Mustaffa S., Z. Rahmat, Z. Yaakub, R. Nookiah, M. D. Amiruddin, M. Ong-Abdullah, and A. K. Din. 2015. Genetic Diversity of Tanzanian Natural Oil Palm Populations using Principal Component (PCA) and Cluster Analysis. Pages 634-639 PIPOC, Kuala Lumpur.
Reference ID: 22210
Notes: #22210 > S 8.1.1 #21483

Serdari N. M., M. Ithnin, L. C. L. Ooi, N. C. Ting, M. Marjuni, and R. Singh. 2015. Association Mapping Analysis of Angola Oil Palm Germplasm Collectionn using Single Nucleotide polymorphisms (SNP) Markers. Pages 640-645 PIPOC, Kuala Lumpur.
Reference ID: 22211
Notes: #22211 > S 8.1.1 #21483

Loong H. Y., W. C. Wong, and C. K. Wong. 2015. The Diverse Manifestations of the Mantled Phenotype. Pages 646-654 PIPOC, Kuala Lumpur.
Reference ID: 22212
Notes: #22212 > S 8.1.1 #21483

Wening S., Y. Yenni, E. Suprianto, Ernayunita, and A. R. Purba. 2015. DNA Fingerprinting of SP540T Population. Pages 655-656 PIPOC, Kuala Lumpur.
Reference ID: 22213
Notes: #22213 > S 8.1.1 #21483

Abd Manaf Z., A. K. Ab Rahman, and N. H. Mansor. 2015. Assessment of Oil Palm Seedlings Assistance Scheme on FFB Yield and Income of Smallholders. Pages 657-668 PIPOC, Kuala Lumpur.
Reference ID: 22214
Notes: #22214 > S 8.1.1 #21483

Aman Z., A. R. Abdul Rahim, and A. K. Din. 2015. Employment in the Oil Palm Plantation: A Malaysian Experience. Pages 669-676 PIPOC, Kuala Lumpur.
Reference ID: 22215
Notes: #22215 > S 8.1.1 #21483

Listia E. and Sumaryanto. 2015. Effect of Oil Palm Stomatal to Phosynthesis Rate at Different Altitude Planting. Pages 677-682 PIPOC, Kuala Lumpur.
Reference ID: 22216
Notes: #22216 > S 8.1.1 #21483

Syed Omar S. S., S. H. Lam, and D. L. Meyer. 2015. The Effect of Azomite on Oil Palm Growth and Early Yields Performance. Pages 683-725 PIPOC, Kuala Lumpur.
Reference ID: 22217
Notes: #22217 > S 8.1.1 #21483

Iswandar H. E., H. Fillianti, K. P. Purba, M. Hartanto, Y. P. Astuti, and J. Djuhjana. 2015. Induction Double Haploid Oil Palm via Tissue Culture Protocols Supported by Ploidy Analysis and Microsatellites Screening. Pages 726-732 PIPOC, Kuala Lumpur.
Reference ID: 22218
Notes: #22218 > S 8.1.1 #21483

Prasetyo J. H. H., N. H. Darlan, H. Santoso, and Winarna. 2015. Binga x Deli: Prospective Parent for High Oil-to-bunch Oil Palm Planting Materials. Pages 733-739 PIPOC, Kuala Lumpur.
Reference ID: 22219
Notes: #22219 > S 8.1.1 #21483

Yusuf M. A., N. H. Darlan, H. Santoso, and Winarna. 2015. Application of Super Absorbent Polymer (SAP) to Extend the Interval of Watering in the Oil Palm Pre Nursery. Pages 740-746 PIPOC, Kuala Lumpur.
Reference ID: 22220
Notes: #22220 > S 8.1.1 #21483

Ho S. H., R. Fulgencio, T. Auler, A. Xaviar, C. K. Hoe, and M. N. Ahmad Ramdzan. 2015. Indaziflam (Alion®) - A Game Changer for Oil Palm Weed Management. Pages 747-773 PIPOC, Kuala Lumpur.
Reference ID: 22221
Notes: #22221 > S 8.1.1 #21483

Muhamad Afiq A. H., N. A. Shaharuddin, A. R. A'fifah, and R. Zubaidah. 2015. Changes in Oil Palms Morphological and Physiological Response after the Exposure of Paclobutrazol (PBZ). Pages 463-472 PIPOC, Kuala Lumpur.
Reference ID: 22222
Notes: #22222 > S 8.1.1 #21483

Chung G. F. 2014. Brief Notes on Recognition and Management of Deadly Noxious Weed - *Parthenium hysterophorus* L. (Asteraceae). The Planter, 90:869-880.
Reference ID: 22224
Notes: #22224 > S serial #21792

Hamid S. A. 2014. Plantation Industry: Challenges Faced by Smallholders. The Planter, 90:821-833.
Reference ID: 22225
Notes: #22225 > S serial #21973

Lee C. T., I. Arifin, C. C. Tan, S. Hamzah, Z. A. Rahman, and M. M. Hanafi. 2014. Effect of Reactive Phosphate Rock and Its NKMg Fertilisers under Two Placement Methods on Oil Palm Yield. The Planter, 90:717-742.
Reference ID: 22226
Notes: #22226 > S serial #21974

Basiron Y. 2014. Palm Oil Marketing: New Money for the Players. The Planter, 90:743-761.
Reference ID: 22227
Notes: #22227 > S serial #21974

Koo S. Y. 2014. The Impact of Goods and Services Tax on Plantation Industry. The Planter, 90:639-654.
Reference ID: 22228
Notes: #22228 > S serial #21975

Slade E. M., M. I. Burhanuddin, J.-P. Caliman, W. A. Foster, M. Naim, S. Prawirosukarto, J. L. Snaddon, E. C. Turner, and D. J. Mann. 2014. Can Cattle Grazing in Mature Oil Palm Increase Biodiversity and Ecosystem Service Provision. The Planter, 90:655-669.
Reference ID: 22229
Notes: #22229 > S serial #21975

Veloo R., P. W. Mah, M. Perumal, and K. Amirudin. 2014. The Use of GPS/GIS and Mapping Technology for Plantation Field Audit Practices. The Planter, 90:489-502.
Reference ID: 22230
Notes: #22230 > S serial #21791

Foster W. A., J. L. Snaddon, A. D. Advento, A. K. A. Agung, H. Barclay, J.-P. Caliman, C. Kurniawan, D. J. Kurz, D. Mann, M. Naim, D. P. Pujianto, T. S. R. Dzulfikar, E. M. Slade, Soeprapto, Suhardi, P. S. Sudharto, S. T. Ribka, W. Resti, H. W. Rudi, and E. C. Turner. 2014. The Biodiversity and Ecosystem Function in Tropical Agriculture (BEFTA) Project. The Planter, 90:581-595.
Reference ID: 22231
Notes: #22231 > S serial #22026

Ahmad M. J. 2014. Addressing and Managing Palm Oil Downstream Products. The Planter, 90:423-443.
Reference ID: 22232
Notes: #22232 > S serial #22027

ISP. The Planter Vol 90 No 1058 May 2014. 1058[90], 319-382. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22233
Notes: S serial #22233
Abstract: In this Issue :
Editorial: Water Shortage: Act Now and Stop Passing on the Blame
Technical: The Potential of Red Palm Weevil Infesting and Destroying Oil Palm Industry in Malaysia **#22234**
Reproduced: Labour Constrains and Potential Solutions **#19740**
Planters' Write: Loneliness and Soo Kong Poi
John Edward Duckett - My Mentor
General: Safe Working Environment

Idris A. B., H. Mokhtaruddin, C. Zazali, N. O. Wahida, S. Yaakop, and I. R. Hazmi. 2014. The Potential of Red Palm Weevil Infesting and Destroying Oil Palm Industry in Malaysia. The Planter, 90:329-340.
Reference ID: 22234
Notes: #22234 > S serial #22233

ISP. The Planter Vol 90 No 1057 April 2014. 1057[90], 230-310. 2014. Kuala Lumpur, ISP.
Reference ID: 22235
Notes: S serial #22235 Vol 90 No 1057
Abstract: In this Issue:
Editorial: How Will Genomics Impact the Oil Palm Industry?
Theme: Omics: Mesocarp Biochemistry Provides Insight into Increased Oil Palm Yield **#22236**
Sequencing for Super Seeds **#22237**
Applications of Molecular Markers for Oil Palm Crop Improvement **#22238**
Planters' Write: The First Birthday of Tungud Estate

Appleton D. R., H. F. Teh, B. K. Neoh, E. K. Ooi, Y. C. Wong, Q. B. Kwong, H. M. Yusof, F. T. Chew, and K. Harikrishna. 2014. Omics: Mesocarp Biochemistry Provides Insight into Increased Oil Palm Yield. The Planter, 90:241-260.
Reference ID: 22236
Notes: #22236 > S serial #22235

Lee W. W., B. H. Kwan, S. H. Boon, K. L. Chua, C. H. Lee, and S. C. Cheah. 2014. Sequencing for Super Seeds. The Planter, 90:261-280.
Reference ID: 22237
Notes: #22237 > S serial #22235

Syed Alwee S. S. R., T. Y. Seng, S. H. Mohamed Saad, and L. J. Leao. 2014. Applications of Molecular Markers for Oil Palm Crop Improvement. The Planter, 90:281-299.
Reference ID: 22238
Notes: #22238 > S serial #22235

ISP. The Planter Vol 90 No 1056 March 2014. 1056[90], 150-225. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22239
Notes: S serial #22239
Abstract: In this Issue:
Editorial: Continuing Unfair Challenges for the Oil Palm Industry
Technical: Re-evaluation of Nutrients Requirements for Oil Palm Planting on Peat Soil **#20196**
Planters' Write: Lai Ah Lam and the River of Gold
General : A New Herbicides Sprayer - No Mic and No Water Technique
The Planter Interview - Mahbob Abdullah

ISP. The Planter Vol 90 No 1055 February 2014. 1055[90], 80-145. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22240
Notes: S serial #22240
Abstract: In this Issue:
Editorial: Oil Palm - Surviving the Test of Economic Sustainability
Technical: Diversity and Distribution of Natural Enemies (Predators and Parasitoid) of Bagworms (Lepidoptera: Psychidae) on Selected Host Plants in an Oil Palm Plantation **#22241**
Reproduced: Utilisation of Palm Oil Processing Wastes **#19745**
Planters' Write: Much Ado About Nothing
General: John Edward Duckett - A Great Man, Planter, Environmentalist, Racer: My Father

Rashid Y., C. S. Md Rawi, A. H. Ahmad, and N. H. Hamid. 2014. Diversity and Distribution of Natural Enemies (Predators and Parasitoids) of Bagworms (Lepidoptera: Psychidae) on Selected Host Plants in an Oil Palm Plantation. The Planter, 90:91-106.
Reference ID: 22241
Notes: #22241 > S serial #22240

ISP. The Planter Vol 90 No 1054 January 2014. 1054[90], 1-75. 2014. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22242
Notes: S serial #22242
Abstract: In this Issue:
Editorial: Time to Recollect
Technical: Correction of Acute Magnesium Deficiency in Oil Palm on a Sedentary Inland Soil in Indonesia **#20040**
Reproduced: Harvesting and Collection Standards: KLK's Journey, Experiences and Challenges **#19733**
Planters' Write: Norman Kingsley-Pallant and the Nursery Planting Bags

ISP. The Planter Vol 89 No 1053 December 2013. 1053[89], 870-938. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22243
Notes: S serial #22243
Abstract: In this Issue:
Editorial: Occupational Safety and Health and Migrant Workers in the Plantation Sector in Malaysia
Article: Studies on Feeding Differences of Coconut Black-headed Caterpillars on Arecaceae Palms **#22244**
Can Beneficial Microbes Protect Oil Palm from *Ganoderma boninense*? **#22245**
Reproduced: Improved Planting Material:From Laboratory into the Field **#19739**
Planters' Write: Introduction to Sarawak

Kalidas P. 2014. Studies on Feeding Differences of Coconut Black-headed Caterpillar on Arecaceae Palms. The Planter, 89:881-894.
Reference ID: 22244
Notes: #22244 > S serial #22243
Abstract: A study was conducted to assess the difference in infestation of the coconut black-headed caterpillar Opisina arenosella on three arecaceae palms including oil palm. It was found that coconut and palmyra palms were most susceptible to O.arenosella infestation whereas the oil palm was least affected. Variations in the infestation is attiributed to the presence and position of lignin in the leaf fibres. Presence of more lignin in the S_2 layer of secondary cell wall in oil palm caused it to be non-palatable to the pest. Coconut and palmyra palms had more lignin in the S_3 layer which allowed the pest to feed up to the S_2 layer causing heavy damage. Though lignin content is highest in coconut palms, it did not cause any impact on pest incidence and intensity aas it is concentrated in the S_3 layer as compared to S_2 in case of oil palm.

Sarim D. 2014. Can Beneficial Microbes Protect Oil Palm from *Ganoderma boninense*? The Planter, 89:895-916.
Reference ID: 22245
Notes: #22245 > S serial #22243
Abstract: The soil has a complex, diverse, microbial ecosystem that existed long before agriculture became industrialised. When the diverse above ground ecosystem is destroyed and monoculture is put in its place, a radical change will also take place in the below ground microbial ecosystem. It is made worse (further depletion) by the indiscriminate use of agricultiral chemicals, be it the inorganic fertilisers, pesticides, herbicides, fungicides etc. When more soil microorganisms which were beneficial to plants are wiped out by the over use of agricultural chemicals, plant pathogens such as Ganoderma boninense (the causal agent of oil palm's basal stem rot (BSR)) start to occupy the space that was once occupied by the beneficial microorganisms, making the soil 'toxic' to the plants. One strategy that should be adapted to overcome this is by restoring the soil microbial ecosystem.

ISP. The Planter Vol 89 No 1052 November 2013. 1052[89], 795-866. 2013. Kuala Lumpur, ISP.
Reference ID: 22246
Notes: S serial #22246
Abstract: In this Issue:
Editorial: Talent Management in the Planting Industry
Technical: Breeding for High Density Plating - Preliminary Results from FELDA **#22247**
Reproduced: Mechanisation: From Field to Mill **#19743**
Planters' Write: The Beach of Passionate Love The Trig Hill Telephone

Ip W. M., M. N. Mohamad, and C. W. Chin. 2013. Breeding for High Density Planting - Preliminary Results from FELDA. The Planter, 89:805-826.
Reference ID: 22247
Notes: #22247 > S serial #22246
Abstract: This paper discusses four vegetative traits, namely leaf area, rachis length, crown radius and bunch index as proxy measures to estimate the optimum planting density of different oil palm progenies of various origins. The authors show that such individual proxy measures, by themselves, are not reliable for estimation of optimum

planting density and indeed can give contradicting results depending on the trait considered. Hence, vegetative traits can only be used as approximate field indicators as an initial step in the search for progenies that can potentially be planted in higher densities. A properly laid out progeny x density trial will provide more reliable and convincing results.

ISP. The Planter Vol 89 No 1051 October 2013. 1051[89], 715-790. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22248
Notes: S serial #22248
Abstract: In this Issue:
Editorial: Sustainable Development on Peat - The Need for Baseline Data
Technical: Greenhouse Gas (GHG) Emission from Tropical Peatland **#19735**
Reproduced: Peat Soils of Malaysia: Their Extent, Characteristics, Mapping and Classification **#19734**
Planters' Write: The Elephants of Pisang Kecil The Hon Jacob M'bile

ISP. The Planter Vol 89 No 1050 September 2013. 1050[89], 640-710. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22249
Notes: S serial #22249
Abstract: In this Issue:
Editorial: Recent Large Outbreaks of Leaf-eating Caterpillar
Technical: Semifloat System for Cost Effective Production of Oil Palm Seedlings in the Pre-nursery **#22250**
Reproduced: Rising Cost of Plantation Business **#19741**
Planters' Write: Unfolding the Indonesian Saga - Confronting New Challenges in Reforestation: Episode 12 Bill Tully, Planter Extraordinary

Wong S. L., F. Y. Tsan, and B. K. Lee. 2013. Semifloat System for Cost Effective Production of Oil Palm Seedlings in the Pre-nursery. The Planter, 89:649-660.
Reference ID: 22250
Notes: #22250 > S serial #22249
Abstract: The popular two-stage system of raising oil palm seedlings has remained virtually unchanged for the past 50 years. The semifloat system was recently developed to overcome the limitations and disadvantages of the traditional polybag system in the pre-nursery stage. Relative to the polybag system the semifloat system was found to result in seedlings that have better growth parameters and that are more economical in terms of use of resources such as nursery space, water, growing media, pesticides, fertiliser, labour and movement of planting materials.

Moslim R., N. Kamarudin, N. H. Hamid, and C. M. R. Zainal Abidin. 2013. Delivery Techniques of Metarhizium for Biocontrol of Rhinoceros Beetles in Oil Palm Plantations. The Planter, 89:571-586.
Reference ID: 22251
Notes: #22251 > S serial #19851
Abstract: The effectiveness of application of various forms of spore-bearing materials of the fungus Metarhizium anisopliae variety major in the field using different delivery techniques to control the rhinoceros beetle Orocytes rhinoceros was reviewed.

Zainal Aminuddin Z. A., R. R. Radin Suhadi, H. Mohd Noor, and M. Mohamed. 2013. Land Tenure Issues and Plantation Development in Sarawak: TH Plantations Berhad's Experience. The Planter, 89:587-604.
Reference ID: 22252
Notes: #22252 > S serial #19851
Abstract: Tabung Haji Plantations (THP) has a total plantation landbank of approximately 51,500 ha in Sarawak via its nine subsidiary companies through a joint venture with local investors, State Government Agencies or the joint venture under the New Concept of NCR Land Development (NCRLD).

ISP. The Planter Vol 89 No 1048 July 2013. 1048[89], 470-555. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22253
Notes: S serial #22253
Abstract: In this Issue:
Editorial: Confronting Unfair Challenges and Discrimination
Technical: Oil Palm Foliage Damage by *Segestes decoratus* Redtenbacher (Orthoptea: Tettigoniidae: Mecopodinae) in West New Britain, Papua New Guinea **#22254**
Reproduced: Challenges in Integrated Pest Management **#19737**
Planters' Write: Unfolding the Indonesian Saga - Confronting New Challenges in Reforestation: Episode 10 Visit New Guinea!

Ero M. M., T. Manjobie, and C. F. Dewhurst. 2013. Oil Palm Foliage Damage by *Segestes decoratus* Redtenbacher (Orthoptea: Tettigoniidae: Mecopodinae) in West New Britain, Papua New Guinea. The Planter**,** 89:481-494.
Reference ID: 22254
Notes: #22254 > S serial #22253
Abstract: Sexavae are serious pests of oil palm in Papua New Guinea (PNG). Segestes decoratus is one of the four species of sexavae causing economic damage to oil palm on the mainland, West New Britain (WNB) and New Ireland (NI) Provinces. These insects attack oil palm by feeding on the leaflets sometimes leaving only skeletonised fronds ('broomsticks'), greatly reducing the photosynthetic surface area of the leaflets, thus reducing production of fruits by affected palms.

ISP. The Planter Vol 89 No 1047 June 2013. 1047[89], 385-466. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22255
Notes: S serial #22255
Abstract: In this Issue:
Editorial: Confronting Management Challenges in the Oil Palm Industry
Technical: The Oil Palm Industry at the Crossroads **#22256**
Challenges in Fertiliser and Cover Crop Management **#19738**
Planters' Write: Unfolding the Indonesian Saga - Confronting New Challenges in Reforestation: Episode 9 Bigfoot (Rod Mackenzie)
General: The Planter Interview - Dato' Carl Bek-Nielsen

Sepawi A. H. H. 2014. The Oil Palm Industry at the Crossroads. The Planter, 89:397-408.
Reference ID: 22256
Notes: #22256 > S serial #22255

Abstract: Palm oil has been 'demonised' by the western NGOs (WENGOs) for perceived deforestation of tropical rainforest in both Malaysia and Indonesia. But in reality, oil palm planting only occupies 4.5 per cent of Indonesia's land mass and 15 per cent of Malaysia. Oil palm plantation also only occupies 4.5 per cent of the world total oil seeds planted areas. Oil palm plantation deforestation and qualified as planted forest whereas rapeseed or soya bean areas are non-forests.

ISP. The Planter Vol 89 No 1046 May 2013. 1046[89], 310-380. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22257
Notes: S serial #22257
Abstract: In this Issue :
Editorial: Promoting Safety Culture
Technical: Performance and Economic Comparisons of Manual and Mechanised Fertiliser Application for Mature Oil Palm **#22258**
Planters' Write: Unfolding the Indonesian Saga - Confronting New Challenges in Reforestation: Episode 8 Tales from an Earlier Planting Age - Ahmad Ramali
General: *Nephrolepis* as Natural Ground Cover in Foong Lee Plantations

Yahya A., H. S. Vui, D. E. Pebrian, and T. A. Ishola. 2013. Performance and Economic Comparisons of Manual and Mechanised Fertiliser Applications for Mature Oil Palm. The Planter, 89:323-346.
Reference ID: 22258
Notes: #22258 > S serial #22257
Abstract: The problem of labour shortage in addition to environmental hazard due to improper fertiliser application method calls for efficient and effective method of fertiliser application. This study compares the productivity of workers, human energy expenditure and operational cost between manual and mechanised method of fertiliser application operation for matured oil palm in Malaysia.

IPNI. Better Crops with Plant Food Vol.100 (2016, No. 1). Better Crops With Plant Food 100[1], 1-23. 2016. USA, IPNI.

Reference ID: 22259
Notes: S serial #22259
Abstract: In this Issue:
An Interview with 2015 IPNI Science Award Winner - Dr. Cynthia Grant
Nutrient Consideration for Low Corn Prices
Potassium Changes in Soils Managed for Cash or Grain Crops
Fertilization Practices in Tunisian High-Density Olive Planting Systems
2015 Crop Nutrient Deficiency Photo Contest Winners
The Colors in Phosphorus Deficient Plants
Importance of Phosphorus Management in Maize-Wheat Cropping Systems
Drought and Soil Salinity Influence Response of Cereals to Potassium and Sulfur Fertilization
Dr. Mirasol Pampolino Named Deputy Director for IPNI Southeast Asia Program
Information about the 2016 InfoAg Conference

ISP. The Planter Vol 89 No 1045 April 2013. 1045[89], 245-305. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22260
Notes: S serial #22260
Abstract: In this Issue:
Editorial: Do Not Blame Nature for Floods - Implement Preventive Measures
Technical: Chemical Control of *Baeckea frutescens* (L) in Oil Palm Plantations **#22261**
Reproduced: Sustainability Challenges and Food Security: Is Palm Oil the Solution? **#22262**
Planters' Write: The River of Layang Layang Unfolding the Indonesian Saga-Confronting New Challenges in Reforestation: Episode 7
General: The Planter Interview - J E Duckett
Water Stress: Use Field Dripping System

Balasubramaniam R. 2013. Chemical Control of *Baeckea frutescens* (L) in Oil Palm Plantations. The Planter, 89:257-266.
Reference ID: 22261
Notes: #22261 > S serial #22260
Abstract: An experiment was conducted to evaluate the bio-efficacy of several herbicide treatments and a manual slashing treatment to control the shrub plant Baeckea frutescens in oil palm plantation.

Chandran M. R. 2013. Sustainability Challenges and Food Security: Is Palm Oil the Solution? The Planter, 89:267-277.
Reference ID: 22262
Notes: #22262 > S serial #22260
Abstract: By the end of 2011, the number of hungry people passed one billion for the first time. The food system is buckling under intense pressure from climate change; ecological degradation; population growth; rising energy prices; rising demand for meat and dairy products, cereals, edible oils and fats. Competition for land from biofuels, urbanisation and industry also poses a major threat to food security.

ISP. The Planter Vol 89 No 1044 March 2013. 1044[89], 160-240. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22263
Notes: S serial #22263
Abstract: In this Issue:
Editorial: the Implication of China Inspection and Quarantine Rules on the Import of Edible Palm Oil
Technical: Water for Oil Palm: Water Management **#22264**
Reproduced: Successful Intensification of Oil Palm Plantations with Best Management Practices: Impacts on Fresh Fruit Bunch and Oil Yield **#19560**
Planters' Write: Rooting Out Problems

MD Noor M. R., M. H. Harun, A. T. Mohamed, A. K. Din, and Y. M. Choo. 2013. Water for Oil Palm: Water Management. The Planter, 89:171-184.
Reference ID: 22264
Notes: #22264 > S serial #22263
Abstract: Water is the most important limiting factor for food production and it is directly influenced by climatic changes in temperature and water availability.

ISP. The Planter Vol 89 No 1043 February 2013. 1043[89], 90-156. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22265
Notes: S serial #22265
Abstract: In this Issue:
Editorial: Threats to the Oil Palm Industry
Technical: A New Invasive Coconut Pest in Malaysia: the Red Palm Weevil (Curculionidae: *Rhynchophorus ferrugineus*) **#22266**
Reproduced: Investment in Oil Palm Agriculture in Africa **#22267**
Population Limits **#22268**
Planters' Write: The Chess Game

Azmi W. A., Z. Chik, A. R. Abdul Razak, and N. 'I. A. Ghani. 2013. A New Invasive Coconut Pest in Malaysia: the Red Palm Weevil (Curculionidae: *Rhynchophorus ferrugineus*). The Planter, 89:97-114.
Reference ID: 22266
Notes: #22266 > S serial #22265

Bakoume C. 2013. Investment in Oil Palm Agriculture in Africa. The Planter, 89:115-132.
Reference ID: 22267
Notes: #22267 > S serial #22265
Abstract: The recent focus in the production of palm oil for bio-fuels as well as for food has increased the demand for land expansion in Africa, the continent of origin of oil palm, and, somewhat surprisingly, a net importer of palm oil.

Wood B. J. 2014. Population Limits. The Planter, 89:133-141.
Reference ID: 22268
Notes: #22268 > S serial #22265
Abstract: In the late 1950s, the word was of 2.9 billion mouths to feed globally, expected to grow to 3.5 billion by 1970. For me, a young population ecologist rather unexpectedly brought into agricultural crop protection, this statistic had particular interest. As time went on, I increasingly saw a connection to the task of manipulating pest populations, specifically that population numbers were governed by resource available, rather than that the number existsand so requires the resource. Now we must feed 7 billion, with expectation of 9 billion by 2050. The actuality, it seems to me, is that if we are able to feed 9 billion, we shall have them, and if we are not, we won't. Nowadays we hear from all directions about the need to produce food for a large and increasing population, whilst respecting the integrity of environment. Less attention is generally given to the population side in this equation, whixh is what I want to address here.

ISP. The Planter Vol 89 No 1042 January 2013. 1042[89], 1-82. 2013. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22269
Notes: S serial #22269
Abstract: In this Issue:
Editorial: Recollectiong 2012
Technical: Lysimeter Studies and Irrigation of Oil Palm in Some Inland Soils of Peninsular Malaysia - Felda's Experience **#22270**

Reproduced: The Roundtable of Sustainable Palm Oil: Past, Present and Beyond **#22271**
Planters' Write: Amherst Revisited
General: The Planter Interview: Tan Sri Dato' (Dr) K R Somasundram
A Reflection of the Plantation Industry - Its Origin, Quest and Challenges: Part 4

Lee C. T. and I. Arifin. 2013. Lysimeter Studies and Irrigation of Oil Palm in Some Inland Soils of Peninsular Malaysia - Felda's Experience. The Planter, 89:15-34.
Reference ID: 22270
Notes: #22270 > S serial #22269
Abstract: Rainfall distribution in inland areas of Peninsular Malaysia is generally uneven, thus bearing considerable effect on the growth and production of oil palm.

Webber D. and L. Wilfred. 2013. The Roundtable on Sustainable Palm Oil: Past, Present and Beyond. The Planter, 89:35-47.
Reference ID: 22271
Notes: #22271 > S serial #22269
Abstract: The Roundtable on Sustainable Palm Oil, in short the RSPO was formed as an answer to the global call for sustainably produced palm oil. The RSPO is a unique organisation as it represents not one but seven stakeholders along the entire palm oil supply chain who have come together to serve as a catalyst towards a sustainable oil palm industry that is economically prosperous, socially just and environmentally friendly. This paper talks about the history of the RSPO, milestones achieved and plans moving forward.

ISP. The Planter Vol 87 No 1029 December 2011. 1029[87], 900-980. 2011. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22272
Notes: S serial #22272
Abstract: In this Issue:
Editorial: Moving Forward
Technical Scientific: Some Approaches for the Conservation and Enhancement of Biodiversity in the Oil Palm Plantations in Sabah **#22037**
Reproduced: Genomics and Plant Breeding **#19002**
Planters' Write: Those Were The Days - A Tale from an Earlier Planting Age. "And All Before Breakfast"
General: "Discovery" of Rubberwood as a Commercial Timber

ISP. The Planter Vol 87 No 1028 November 2011. 1028[87], 815-890. 2011. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22273
Notes: S serial #22273
Abstract: In this Issue:
Editorial: Managing for Sustainability: The Way Forward
Technical: Effect of Planting Date on Growth, Yield and Juice Quality of Sugarcane **#22274**
Reproduced: Commercial-scale Propagation and Planting of Elite Oil Palm Clones: Research and Development Towards Realization **#20119**
Planters' Write: The Last Call of the Ivybank
General: Book Review: Malaysia Agribusiness Directory 201-2012

Hossain M. S., M. A. T. Sohel, A. K. M. R. Islam, M. J. Alam, and M. K. Rahman. 2011. Effect of Planting Date on Growth, Yield and Juice Quality of Sugarcane. The Planter, 87:825-834.
Reference ID: 22274
Notes: #22274 > S serial #22273
Abstract: An experiment was conducted at the experimental farm of the Bangladesh Sugarcane Research Institute (BSRI), Ishurdi, Pabna from October 2007 to March 2009 under the AEZ 11 (This region includes the western part of Ganges River Floodplain which is predominantly high land and medium highland. The area has complex mixtures of olive-brown silt loams and silty clay loams on the upper part of floodplain ridges and dark grey mottled brown, mainly clay soils on ridge sites and in basins). The aim of the experiment was to find the effect of planting date on growth, yield and juice quality of sugarcane.

ISP. The Planter Vol 87 No 1027 October 2011. 1027[87], 730-810. 2011. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22275
Notes: S serial #22275
Abstract: In this Issue:
Editorial: The Pride of a Planter
Technical: Chemical Control of Herbicide-resistant *Eleusine indica* in an Oil Palm Nursery **#22276**
Reproduced: Addressing Issues and Challenges in the Management of Professional Planters **#22277**
R & D Updates on Integrated Pest and Disease Management in Coconut - Malaysia's Experiences **#22278**
Planters' Write: The Galloping Major (N Hausman Hausman deBulay)
General: Increasing Yield Through Fertiliser Application

Ng K. Y. 2011. Chemical Control of Herbicide-resistant *Eleusine indica* in an Oil Palm Nursery. The Planter, 87:739-750.
Reference ID: 22276
Notes: #22276 > S serial #22275

Veloo R. 2011. Addressing Issues and Challenges in the Management of Professional Planters. The Planter, 87:751-770.
Reference ID: 22277
Notes: #22277 > S serial #22275
Abstract: The role of professional planters in enhancing and consolidating the oil palm value chain cannot be over emphasised. It is indeed a great challenge for the industry to manage and sustain high calibre professional planters who could enhance the oil palm business from "seed to the frying pan".

Sivapragasam A. 2011. R & D Updates on Integrated Pest and Disease Management in Coconut - Malaysia's Experiences. The Planter, 87:771-785.
Reference ID: 22278
Notes: #22278 > S serial #22275

ISP. The Planter Vol 87 No 1026 September 2011. 1026[87], 650-730. 2011. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22279
Notes: S serial #22279
Abstract: In this Issue:
Editorial: Occupational Safety and Health in the Plantation Sector....Are We Doing Enough?
Technical: Weed Management Study of Metsulfuron-resistant Soapbrush (*Clidemia hirta* (L.) D.Don) in an Oil Palm Plantation **#22280**
Reproduced: Rubber for Timber: An Addition to the Value Chain **#22281**
Planters' Write: Eric mason of Auki
General: The Planter Interview: Datuk Leslie Davidson

Ramadzan A. M. N., S. Ismail, and T. S. Chuah. 2011. Weed Management Study of Metsulfuron-resistant Soapbrush (*Clidemia hirta* (L.) D.Don) in an Oil Palm Plantation. The Planter, 87:659-670.
Reference ID: 22280**Notes: #22280 > S serial #22279**

Md Said M. A. and C. S. Ang. 2011. Rubber for Timber: An Addition to the Value Chain. The Planter, 87:671-689.
Reference ID: 22281
Notes: #22281 > S serial #22279

ISP. The Planter Vol 87 No 1025 August 2011. 1025[87], 570-650. 2011. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22282
Notes: S serial #22282
Abstract: In this Issue:
Editorial: Prospects of Cocoa in Malaysia
Technical: *Ganoderma* Stem Rot and Its Management on First Generation Oil Palm on Peat **#22283**
Reproduced: Optimising Storage and Shipping to Enhance Palm Oil Value Chain **#22284**
Planters' Write: Sir Robert Bruce Lockhart (1887-1970)
General: Training and Retaining Workers in Plantations and Mills

Lim K. H. and U. Wahidin. 2011. *Ganoderma* Stem Rot and Its Management on First Generation Oil Palm on Peat. The Planter, 87:585-602.
Reference ID: 22283
Notes: #22283 > S serial #22282

Ahmad M. J. 2011. Optimising Storage and Shipping to Enhance Palm Oil Value Chain. The Planter, 87:603-618.
Reference ID: 22284
Notes: #22284 > S serial #22282

ISP. The Planter Vol 84 No 984 March 2008. [84], 140-210. 2008. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22285
Notes: S serial #22285
Abstract: In this Issue:

Editorial: Training for the Plantation Industry
Technical: Comparative Efficacy of Four Methods for Applying Micro-Nutrients to Oil Palm on Deep Peat **#22286**
Reproduced: Beneficial Biodiversity: A Review on Potentially Beneficial Reptile, Bird and Mammal Species in Oil Palm Plantations **#22287**
Planters' Write: Frank Fyfe and His Old Machine

Sidhu M., K. K. Cheong, M. Kurniawan, A. Hasyim, and Z. Sinuraya. 2008. Comparative Efficacty of Four Methods for Applying Micro-Nutrients to Oil Palm on Deep Peat. The Planter, 84:145-168.
Reference ID: 22286
Notes: #22286 > S serial #22285
Abstract: Commercial experiences and earlier research findings have shown that direct application of non-chelated micro-nutrient fertilisers to peat have not always achieved the desired results as responses from treated palms have been inconsistent. With this objective in mind, a trial was established on four-year-old oil palm on deep peat (>5 metres depth) in 2001 to evaluate more effective application methods and its results are summarised here.

Koh L. P. and L. T. Gan. 2008. Beneficial Biodiversity: A Review on Potentially Beneficial Reptile, Bird and Mammal Species in Oil Palm Plantations. The Planter, 84:169-180.
Reference ID: 22287
Notes: #22287 > S serial #22285

ISP. The Planter Vol 84 No 983 February 2008. [84], 70-138. 2008. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22288
Notes: S serial #22288
Abstract: In this Issue:
Editorial: The Level Playing Field for Certification of Palm Oil
Technical: Circle Weeding in Young Oil Palm Using a Hand-held Motorised Grass Cutter **#22289**
Reproduced: Breeding for High Oil Yielding Tenera Palms **#22290**
Planters' Write: My Plantation Childhood Taught Me...
The Wild Elephants of Safoda

Rambe E. F., Z. Sinuraya, K. K. Cheong, and M. Sidhu. 2008. Circle Weeding in Young Oil Palm Using a Hand-held Motorised Grass Cutter. The Planter, 84:79-86.
Reference ID: 22289
Notes: #22289 > S serial #22288
Abstract: The use of Mucuna bracteata as a ground cover in oil palm plantations brings with it a serious drawback i.e. its rapid growth necessitates very frequent weeding of the circles resulting in higher requirement of workers and higher cost of weeding. By using a motorised hand-held grass cutter a worker could weed slightly more than thrice the number of circles achieved by manual weeding and the cost saving per hectare per round could be reduced by Rp 42 870 (RM 15.88).

Mathews J., K. W. Teo, and W. M. Ip. 2008. Breeding for High Oil Yielding Tenera Palms. The Planter, 84:87-116.
Reference ID: 22290
Notes: #22290 > S serial #22288

ISP. The Planter Vol 84 No 982 January 2008. [84], 1-68. 2008. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22291
Notes: S serial #22291
Abstract: In this Issue:
Editorial: Remembering 2007
Technical: Efficacy of Northern Organic Fertiliser on Sustainable Sugarcane Production in Bangladesh **#22292**
Reproduced: Carbon Flow and Budget in Young Mature Oil Palm Agroecosystem on Deep Tropical Peat **#22293**
Review on Fog Inlet Air Cooling System Application for Gas Turbine in High Humidity Environment **#22294**
Planters' Write: The Estate Managers Course
His Own Space
General: The Planter - Preparation of Manuscript Book review - *Mucuna Bracteata* - A Cover Crop and Living Manure

Paul G. C., S. M. Bokhtiar, K. M. Alam, A. Haque, and G. M. A. Hossain. 2008. Efficacy of Northern Organic Fertiliser on Sustainable Sugarcane Production in Bangladesh. The Planter, 84:11-20.
Reference ID: 22292
Notes: #22292 > S serial #22291

Melling L., J. G. Kah, C. Beauvais, and R. Hatano. 2008. Carbon Flow and Budget in Young Mature oil Palm Agroecosystem on Deep Tropical Peat. The Planter, 84:21-28.
Reference ID: 22293
Notes: #22293 > S serial #22291

Christopher C. K. M., K. H. Eng, I. Azree, A. Zulkifli, and K. N. Ban. 2008. Review on Fog Inlet Air Cooling System Application for Gas Turbine in High Humidity Environment. The Planter, 84:29-40.
Reference ID: 22294
Notes: #22294 > S serial #22291
Abstract: The main obstacle in gas turbine operation is obtaining maximum power output. The objective of this paper is purely to review what researchers have achieved so far with regards to fog inlet air cooling system and our stand on the ambuigity of the effectiveness of fog inlet air cooling system in high humidity environment in Malaysia.

ISP. The Planter Vol 82 No 963 June 2006. [82], 370-440. 2006. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22295
Notes: S serial #22295
Abstract: In this Issue:

Editorial: Higher Productivity and Efficient Practices for Sustainable Plantation Agriculture
Technical: The Need to Increase Profitability in Oil Palm Plantations: Matching Crop and Nutrient Management Principles with Evolving Strategies **#14476**
Performance of ECT x BSR Tolerant ECT Hybrid Coconut in High Inoculum Basal Stem Rot Soil of Tamil Nadu **#22296**
Planters' Write: Mandor Dick and His Son Archer
General: Sago - A Sustainable Crop

Karthikeyan G., T. Raguchander, C. Natarajan, and S. Arulraj. 2006. Performance of ECT x BSR Tolerant ECT Hybrid Coconut in High Inoculum Basal Stem Rot Soil of Tamil Nadu. The Planter, 82:407-416.
Reference ID: 22296
Notes: #22286 > S serial #22295

ISP. The Planter Vol 80 No 945 December 2004. [80], 745-820. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22297
Notes: S serial #22297
Abstract: In this Issue:
Editorial: Production of Sustainable Palm Oil
Article: Adoption of Rubber Clones/Seedling Trees in the Estate Sector in India: Recent Trends **#22298**
Carbonisation of Oil Palm Empty Fruit Bunches - A Preliminary Study **#22299**
Planters' Write: The New Chairman
General: The Challenge of Sustainability for the Malaysian Palm Oil Industry
Goof Corporate Governance: A Lesson from the Oil Palm Sector on Sustainable Agriculture Development - Part 1
Water Harvesting - Soil and Water Conservation Management
The Potential for Biofuels from Tropical Plantations, both By-products (particularly Oil Palm), and Main Products

Binni C., J. Toms, G. K. Tharian, and P. K. Viswanathan. 2004. Adoption of Rubber Clones/Seedling Trees in the Estate Sector in India: Recent Trends. The Planter, 80:757-770.
Reference ID: 22298
Notes: #22298 > S serial #22297

Lim K. O., Y. L. Chiew, and S. C. Chua. 2004. Carbonisation of Oil Palm Empty Fruit Bunches - A Preliminary Study. The Planter, 80:771-776.
Reference ID: 22299
Notes: #22299 > S serial #22297
Abstract: Empty fruit bunches from oil palm trees were carbonised at different terminal temperatures ranging from 450^{o}C to 750^{o}C. When the gaseous emissions produced during the carbonisation process were collected and condensed, it was found that the condensate contained both a solid tar-like fraction and a dark coloured acidic liquid fraction. The quality of the charcoal produced, which was found to be somewhat dependent on the terminal carbonisation temperature is of medium grade. Even so it is believed that the product may still be useful for specific purposes.

ISP. The Planter Vol 80 No 944 November 2004. [80], 680-742. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22300
Notes: S serial #22300
Abstract: In this Issue:
Editorial: Impact of Fertilisers on Oil Palm Cultivation
Article: Yield Responses of Young Mature Oil Palms to NPK Fertiliser Application on Loamy Sand in Riau Province, Indonesia **#22301**
Planters' Write: The New Tamil Examiner
General: Green Muscardine Fungus for Coconut Rhinoceros Beetle Control Recipe for a Self-assembled Rechargeable Battery Operated Knapsack Sprayer Discriminatory Fertiliser Reduction Technology
Speech given at the Dedication Memory of the War Memorial

Sidhu M., Z. Sinuraya, and A. Hasyim. 2004. Yield Responses of Young Mature Oil Palms to NPK Fertiliser Application on Loamy Sand in Riau Province, Indonesia. The Planter, 80:689-710.
Reference ID: 22301
Notes: #22301 > S serial #22300

ISP. The Planter Vol 80 No 943 October 2004. [80], 600-680. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22302
Notes: S serial #22302
Abstract: In this Issue:
Editorial: Cost Reduction: Is It Really Possible to Achieve?
Articlel: DNA Marker Technology and Private Sector Oil Palm Breeding **#22305**
Some Pulverisation Techniques of Clearing Old Palms for Replanting **#13045**
Anticandida albicans Activity of Crude Extract of the local Plant, Winged Bean Leaf **#22306**
Planters' Write : My Introduction to Mr Teledu
General: God's Little Acre

Lim C. C. and V. Rao. 2004. DNA Marker Technology and Private Sector Oil Palm Breeding. The Planter, 80:611-630.
Reference ID: 22305
Notes: #22305 > S serial #22302

Zuraini Z., L. Yoga Latha, S. Suryani, and S. Sasidharan. 2004. Anticandida albicans Activity of Crude Extract of the Local Plant, Winged Bean Leaf. The Planter, 80:653-660.
Reference ID: 22306
Notes: #22306 > S serial #22302

ISP. The Planter Vol 80 No 942 September 2004. [80], 540-600. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22307
Notes: S serial #22307
Abstract: In this Issue:
Editorial: The Fundamentals of High Yields in Oil Palm
Article: Manuring in Rubber: Need for Re-Evaluation Based on Case Study **#22308**

Early Establishment of Oil Palm on Peat **#22309**
Growth of 3-year-old *Dyera costulata* under Different Planting Densities **#22310**
Occurrence of Weevil, *Diocalandra stigmaticollis* Gyll in Coconut Palms in Pondicherry **#22311**
Planters' Write: Reg Dalzell and the Effluent Project
General: Mystique of the English Language – 5

Chan W. H. 2004. Manuring in Rubber: Need for Re-Evaluation Based on Case Study. The Planter, 80:551-562.
Reference ID: 22308
Notes: #22308 > S serial #22307
Abstract: The lack of significant response in latex yield to fertiliser treatments in a number of rubber trials has been attributed to high within trial variability arising from uncontrollable factors outside the experiment and inefficient trial conduct.

Bong C. F. J. and S. N. Liew. 2004. Early Establishment of Oil Palm on Peat. The Planter, 80:563-572.
Reference ID: 22309
Notes: #22309 > S serial #22307
Abstract: A new planting technique, the Refill Planting Technique for oil palm cultivation on peat is described. The technique helps in the early establishment of the palm on peat. Palms planted with the refill planting technique showed satisfactory growth, no sign of leaning and reduced or no incidence of termite infestation three years after planting. In addition, full stands of palms as well as uniform palm growth could be achieved using this technique.

Yahya A. Z., R. Koter, W. Y. Wan Ahmad, S. Anwar, and M. K. Lewandrowski. 2004. Growth of 3-year-old *Dyera costulata* under Different Planting Densities. The Planter, 80:573-580.
Reference ID: 22310
Notes: #22310 > S serial #22307

Subaharan K., R. Velumurugan, S. J. D. Bosco, C. V. Sairam, S. Arulraj, and V. Rajagopal. 2004. Occurrence of Weevil, *Diocalandra stigmaticollis* Gyll in Coconut Palms in Pondicherry. The Planter, 80:581-586.
Reference ID: 22311
Notes: #22311 > S serial #22307

ISP. The Planter Vol 80 No 941 August 2004. [80], 480-540. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22312
Notes: S serial #22312
Abstract: In this Issue:
Editorial: ISO Standards and Quality of Assurance
Article: Yield Responses of Young Mature Oil Palms to NPK Fertiliser Application on Deep Peat in North Sumatera Province, Indonesia **#22313**
Planting Wild Bananas as a Store of Organic Potassium and Nitrogen - A Preliminary Study **#22314**
Conversion of Lignocellulosic Biomass to Fuel Ethanol - A Brief Review **#22315**
Planters' Write: Planting in Selangor - Early Days

Sidhu M., Z. Sinuraya, and A. Hasyim. 2004. Yield Responses of Young Mature Oil Palms to NPK Fertiliser Application on Deep Peat in North Sumatera Province, Indonesia. The Planter, 80:489-508.
Reference ID: 22313
Notes: #22313 > S serial #22312

Chiu S. B. and Yuhdi. 2004. Planting Wild Bananas as a Store of Organic Potassium and Nitrogen - A Preliminary Study. The Planter, 80:509-516.
Reference ID: 22314
Notes: #22314 > S serial #22312

Lim K. O. 2004. Conversion of Lignocellulosic Biomass to Fuel Ethanol - A Brief Review. The Planter, 80:517-526.
Reference ID: 22315
Notes: #22315 > S serial #22312
Abstract: The paper provides a brief review of the conversion of lignocellulose biomass to fuel ethanol. The various steps in the conversion process are discussed and some information on the potential of the conversion process are also provided.

ISP. The Planter Vol 80 No 940 July 2004. [80], 410-480. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22316
Notes: S serial #22316
Abstract: In this Issue:
Editorial: Plantation Mechanisation: Critical Success Factors
Article: Long-term Drainability of and Water Management in Peat Soil Areas **#22317**
Effects of Organic Manure and Inorganic Fertiliser on Soil Fertility and the Productivity of Sugarcane in Bangladesh **#22318**
Planters' Write: Major Arshad and the Olive Bridge
General: *Mucuna Bracteata* - Dry Matter Conversion and Decay Rate of Litter
Advertorial - Pulverise and Perish

Tie Y. L. 2004. Long-term Drainability of and Water Management in Peat Soil Areas. The Planter, 80:423-442.
Reference ID: 22317
Notes: #22317 > S serial #22316
Abstract: This paper briefly discusses the concept of long-term drainability of peat soil vis-a-vis the phenomenon of subsidence, and the importance of water management

Bokhtiar S. M. and K. Sakurai. 2004. Effects of Organic Manure and Inorganic Fertiliser on Soil Fertility and the Productivity of Sugarcane in Bangladesh. The Planter, 80:443-454.
Reference ID: 22318
Notes: #22318 > S serial #22316

ISP. The Planter Vol 80 No 939 June 2004. [80], 330-410. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22319
Notes: S serial #22319
Abstract: In this Issue:

Editorial: Replant or Perish
Article: Peat Soils and their Management for Oil Palm: A Brief Overview **#22320**
Flowering Biology and Palynology in Drumstick (*Moringa oleifera* Lam.) **#22321**
Planters' Write: Joe Walton and the Swiss Knife
General: Mystique of the English Language – 4 4th National Seminar "Replant or Perish" - Opening Address
Book Review: Proceedings of the MPOA Seminar 2003 - Good Agricultural Practice and Food Safety in Palm Oil Industry

Pushparajah E. 2004. Peat Soils and their Management for Oil Palm: A Brief Overview. The Planter, 80:343-356.
Reference ID: 22320
Notes: #22320 > S serial #22319
Abstract: The paper briefly reviews general characteristics of peat soils in the tropics and then considers some important specific characteristics of these soils at series level, in Malaysia. Subsequently important management aspects of these soils for oil plam are considered. Particular emphasis is given to water management (especially drainage), compaction, problems of settling of soil, termite infestation and nutrient management.

Mathew S. K. and L. Rajamony. 2004. Flowering Biology and Palynology in Drumstick (*Moringa oleifera* Lam.). The Planter, 80:357-370.
Reference ID: 22321
Notes: #22321 > S serial #22319

ISP. The Planter Vol 80 No 938 May 2004. [80], 260-332. 2004. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22322
Notes: S serial #22322
Abstract: In this Issue:
Editorial: Plant Protection in Oil Palm in Malaysia
Article: Oil Content in Oil Palm Fruit Mesocarp and Bunch, and Some of its Related Physiological and Agronomical Factors **#18987**
Factors affecting Smallholders' Oil Palm Production in the Western Highlands of Cameroon **#22323**
Planters' Write: Turning Points - Life and Mr Boon Weng Siew
General: Letters to the Editor Advertorial - Element 1: OSHA & it's Implication to Estate Management - Part 2

Ngoko Z., C. Bakoume, V. Djoukeng, P. Tchamo, B. Imele, and B. N. Adon. 2004. Factors affecting Smallholders' Oil Palm Production in the Western Highlands of Cameroon. The Planter, 80:299-308.
Reference ID: 22323
Notes: #22323 > S serial #22322

ISP. The Planter Vol 79 No 926 May 2003. [79], 290-356. 2003. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22324
Notes: S serial #22324
Abstract: In this Issue:
Editorial: Carry On Caring

Article: Early Growth and Secondary Characteristics of RRIM 2000 Series Clones in a Large Plantation Group **#13019**
Best Practices for Oil Palm Cultivation - Land Selection and Management **#13020**
Planters' Write: Douglas Hiorns and His Search for Crops Caltex Overland Challenge - Part 3 The Enemy Within

ISP. The Planter Vol 79 No 925 April 2003. [79], 225-284. 2003. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22325
Notes: S serial #22325
Abstract: In this Issue:
Editorial: Attracting and Retaining Workers on Estates: Going Back to Basics
Article: Basics of an Integrated FFB Evacuation System **#13021**
Timber Yield Potential of *Hevea* Clones in India: A Preliminary Assessment **#13022**
Planters' Write: Gordon McCullough and the Society Building The Changing Time Malaysian Overland Challenge - Part Two

ISP. The Planter Vol 79 No 924 March 2003. [79], 140-220. 2003. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22326
Notes: S serial #22326
Abstract: In this Issue:
Editorial: Genetically Modified Organisms
Article: Growth and Yield Responses of Cocoa to Phosphate Fertiliser Application on Volcanic Soils in North Sumatera Province, Indonesia **#13023**
Mechanisation - Golden Hope's Approaches and Experiences **#13024**
Planters' Write: Robert Dawson and the Terrorist Ambush I Remember...
Caltex Overland Challenge - Part One

ISP. The Planter Vol 79 No 923 February 2003. [79], 60-138. 2003. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22327
Notes: S serial #22327
Abstract: In this Issue:
Editorial: Climate Change
Article: Insect Pollination of Oil Palm - An Evaluation of the Long-term Viability and Sustainability of *Elaeidobius kamerunicus* **#13016**
Mechanising Estate Operations - The Pamol Experience **#13017**
Why Rubber Prices May Double **#13018**
Planters' Write: The Moods of Richard Bower

ISP. The Planter Vol 79 No 922 January 2003. [79], 1-65. 2003. Kuala Lumpur, The Incorporated Society of Planters.
Reference ID: 22328
Notes: S serial #22328
Abstract: In this Issue:
Editorial: Chairman's Message 2003
Retracing 2002
Article: Flood Mitigation Measures for Oil Palm Planting in Segame Floodplain - A PPB Oil Palms' Experience **#22329**

Colonisation of Rubber Wood and Oil Palm Blocks by Monokaryons and Dikaryons of *Ganoderma boninense* - Implications to Infection in the Field **#22330**
Planters' Write: Mr P G Nair and the Missing Stocks Driving Around the World

Siburat S., H. Dusimin, and S. T. Sim. 2003. Flood Mitigation Measures for Oil Palm Planting in Segama Floodplains - A PPB Oil Palms' Experience. The Planter, 79:15-30.
Reference ID: 22329
Notes: #22329 > S serial #22328

Hasan Y. and J. Flood. 2003. Colonisation of Rubber Wood and Oil Palm Blocks by Monokaryons and Dikaryons of *Ganoderma boninense* - Implications to Infection in the Field. The Planter, 79:31-40.
Reference ID: 22330
Notes: #22330 > S serial #22328

Friends of the Earth Europe. Failures in Wilmar's Promise To Clean Up The Palm Oil Business. 1-32. 2015.
Reference ID: 22331
Notes: #22331e
Abstract: In August and September 2015, as in the dry seasons of previous years, fires started to smolder and roar in the forests and peatlands of Sumatra and Kalimantan, Indonesia. The fires of 2015 caused enormous health and environmental problems for hundreds of thousands of people in Indonesia and neighboring countries. In peat land areas the fires can burn for months, releasing carbon dioxide, methane and nitrous oxide. The impact of peat fires can be more than 200 times worse for the climate than fires on other land.1 Bloomberg calculated that on 14 October, 2015, emissions from the fires alone soared to 61 megatons, almost 97 percent of Indonesia's total emissions.
At the time of this writing, as the monsoon rains bring relief to Indonesia, and as the world gathers for UNCOP 21 in Paris to address the global climate crisis, the question that rises from the ashes is: who is responsible for these fires? And how can we prevent this from happening next year and in the years beyond?
In 2011, the Indonesian government instituted a moratorium on plantation development on peat deeper than three meters; in 2013, the moratorium was extended for another two years. Yet due to frequent revisions of the moratorium area, palm oil companies have been consistently allowed to develop plantations on fragile peatlands formerly designated as peat moratorium areas.
Friends of the Earth has conducted research into five palm oil plantations in Central Kalimantan that belong to the palm oil companies Wilmar International (WIL: Singapore) and Bumitama Agri Ltd. (BAL: Singapore). Despite the fact that both palm oil companies have adopted high-profile policies prohibiting burning, deforestation, and exploitation of peatlands, we have found that both companies appear to have flouted national laws, their own sustainability policies and the widely celebrated New York Declaration on Forests by developing palm oil on peatlands, causing or allowing the destruction of High Carbon Stock areas, and taking insufficient measures to prevent forest fires in their plantations.
Of course, these palm oil companies do not operate in isolation. While the Indonesian government has made strong declarations and issued presidential decrees to prevent future forest fires and promote restoration of affected areas,

government bodies have repeatedly issued plantation permits overlapping the peat moratorium area, enabling peatland drainage, development, and ultimately, destruction by fire.
Given the complexity of the landscapes, land uses, and concession boundaries and the role of smallholder farmers within and nearby company concessions, it is consistently challenging to prove who started the fires; however, according to the forest law no. 41/1999 article 49,3 companies are legally responsible for fires within their concessions. The allegations contained in this report, therefore, are based not on proving, or needing to prove, who exactly started the fires, but on recognizing that accountability and legal liability rest ultimately with the concession owners. Company claims that external sources are responsible for fires in their concessions lack credibility if no proof for those claims is provided. Neither Wilmar nor Bumitama have provided such evidence.
Financiers in the UK, Netherlands, France, the United States, and other countries are providing direct financing to these companies - many of them doing so despite having publicly committed to Environmental, Social and Governance (ESG) criteria that should prevent their financing such destructive activities. Of eleven financiers in the EU and fourteen in the US to whom Friends of the Earth has sent this report for comments, seven have responded by the time of publication. The answers we received range from advice that FoE file a complaint with Wilmar itself or with the Roundtable on Sustainable Palm Oil (RSPO) - notably, a multi-stakeholder body without a legal mandate and with a notorious lag-time in addressing complaints4 - to a lengthy response arguing that Wilmar is in fact operating sustainably. That is to say that, despite detailed, independent, satellite-based and groundchecked evidence5 on specific cases, even financiers that have committed to upholding environmental standards do not seem alarmed by the lack of implementation of their own and their investee companies' policies during what many commentators are calling the largest environmental crisis of the 21st century.6 Such a lax attitude bodes extremely ill for the efficacy of voluntary corporate commitments to social and environmental responsibility.
We call on financiers linked to Wilmar and Bumitama, as well as to other companies in the palm oil sector found in breach of environmental commitments, to withdraw their financial services from these companies to make clear that there will be zero tolerance for breaches of the companies' and their financiers' environmental and social commitments. The Indonesian government must review all permits given to palm oil developers, and must take appropriate sanctions against companies and plantations with fires. They must also ensure the responsibility of companies for the rehabilitation of forests and peatlands burned within their concessions, and demand that these companies take responsibility for damages to the people and lands impacted by the fires and haze in the burned areas.

Hendriksz, M. Professional Farmers for a Sustainable Future. 2013.
Reference ID: 22332
Notes: #22332e
Abstract: Sub-regional Workshop on Soil Fertility Management for Cocoa Production - World Cocoa Foundation
Soil Fertility Management
Predicted from Climatological point of view in 2030
Nutrient mass balance requires external inputs; fertilizers

Mondelez International. Cocoa Life: Empowering Cocoa Farmers and Communities: 2015 Progress Report. 1-64. 2015.
Reference ID: 22333
Notes: #22333e
Abstract: Cocoa Life is a long-term $400-million commitment to sustainability that strengthens our chocolate business and deepens our connection with our cocoa origins. As president of Global Chocolate for Mondel.z International, I am proud of the progress we are making on the Cocoa Life program. Today, Cocoa Life supplies 21 percent of the cocoa Mondel.z buys for our brands and some of our brands such as Cote d wfProudly displaying the Cocoa Life logo. I fm pleased by the transformational impact the program is having on local communities and the demonstrated success of this innovative, holistic approach to sustainability. As our chocolate business grows, we need to ensure the farmers can supply the cocoa we need. Based on that central premise, Cocoa Life provides fuel to help support our growth. However, our commitment goes beyond generating a sustainable cocoa supply for years to come. It sife deeply rooted in a d cocoa farmers and their communities thrive. We are providing communities the tools they need to create inspiring places to live and work.
Cocoa Life mis groundbreaking development. The program includes a wide array of initiatives to support farmers in local communities, helping them cultivate stronger, more resilient crops and create more empowered cocoa communities. These programs range from detailed farming-technique training to education and literacy programs to business management and financial literacy.
There is a deliberate emphasis to make sure women also benefit from these initiatives. In addition, deforestation and the related issue of global warming impacts farming communities around the world and is a key challenge we are addressing through the Cocoa Life program. This is so important because cocoa grows in a narrow tropical zone and is quite vulnerable to climate change. Cocoa farming needs the protection of the forest to help moderate temperature and conserve water. We empower farmers to take simple actions to lessen the impact of climate change and reduce our carbon footprint by tackling deforestation.

Australian Venture Consultants PTY LTD 2012. Rise of the Machines?
Reference ID: 22334
Notes: #22334
Abstract: Adoption of automation technology in the Australian resources industries and its implication for vocational education and training and higher education

Griffiths T. L. and J. B. Tenenbaum. 2006. Optimal Predictions in Everyday Cognition. Everyday Predictions, 17:767-773.
Reference ID: 22335
Notes: #22335e
Abstract: ABSTRACT—Human perception and memory are often explained as optimal statistical inferences that are informed by accurate prior probabilities. In contrast, cognitive judgments are usually viewed as following error-prone heuristics that are insensitive to priors.We examined the optimality of human cognition in a more realistic context than typical laboratory studies, asking people to make predictions about the duration or extent of everyday phenomena such as human life spans and the box-office take of movies. Our results suggest that everyday cognitive judgments follow the same optimal statistical principles as perception and memory,

and reveal a close correspondence between people's implicit probabilistic models and the statistics of the world.

Gerendas, J., Donough, C. R., Oberthür, T., Lubis, A., Indrasuara, K., Dolong, T., Abdurrohim, G., and Rahmadsyah. Sulphur Nutrition of Oil Palm in Indonesia - the Neglected Macronutrient. 2011. IPNI.
Reference ID: 22336
Notes: #22336e
Abstract: The macronutrient sulphur (S) is a component of S-containing amino acids, and therefore essential for protein formation. Sulphur is also essentially required for oil synthesis. The S status of oil palm (OP) has not received much attention as it was assumed that the S requirement is met by natural deposition and application of S-containing fertilisers. However, in oil palm plantations in Indonesia S-free fertiliser regimes, based on urea, KCl, dolomite, and rock phosphate, have been used widely during the last decades. Thus, there is a potential risk of S supply being insufficient, but data allowing assessment of the S status were not available.

Bell R. W., G. Pracilio, S. Cook, R. Chhay, and V. Seng. 2006. Mapping Rice Yield and Its Fertilizer Response at Provincial -Scale in Takeo, Cambodia. Cambodian Journal of Agriculture, **7:**36-44.
Reference ID: 22337
Notes: #22337e
Abstract: Our objective was to identify responsive areas for nitrogen (N), phosphorus (P) and potassium (K) fertiliser use on rice (*Oryza sativa* L.) within Takeo province from trial results obtained at 2336 sites. Regression tree analysis identified in order of decreasing importance the following factors which explained the variation in yield from on-farm experiments: season, location, fertiliser, soil type. Semi variograms of the same data set indicated that a maximum spread of 12 km in datum points was required to map yield across the province. Separating the results into N response classes decreased the maximum spread of datum for mapping to only 8 km. The maps generated indicated areas in which response to fertiliser is more or less likely. Whereas P responses were predicted to be relatively uniform across the province, N and K responses were more varied. Results suggest a very strong positive response to N, particularly on the central-west of the province. They also suggest negative effects of high N rates on the most fertile soils (Kbal Po, Krakor) in the east of Takeo, and in the Prateah Lang and Koktrap soils in the flooded areas of the south east of Takeo. At the provincial scale, the maps identified areas that can be used to target extension effort to where it is likely to be most effective, and areas where further research is needed to clarify reasons for poor responses. This should enhance the strategic planning capability for delivery of extension services and fertiliser inputs.

McCown R. L. 2005. New Thinking About Farmer Decision Makers. Pages 11-44 *in* JL Hatfield, editor. The Farmer's Decision: Balancing Economic Successful Agriculture Production with Environmental Quality. Soil and Water Conservation Society, Ankeny, Iowa, USA.
Reference ID: 22338
Notes: #22338e
Abstract: In the late 1970s, agricultural scientists embarked on the exciting new adventure to make decision support systems for farmers. Two decades later, with my colleagues, Peter Carberry and Zvi Hochman, I set out to understand why farmers have not valued these products more. We began by visiting developers of some of

the major decision support systems (DSSs) in the USA and Australia and hearing their stories of development and delivery. This effort led to the publication by some of these key players of their experiences and learnings in a Special Issue of Agricultural Systems (Vol. 74, No. 1, 2002), entitled 'Probing the Enigma of the Decision Support System for Farmers.' Beyond our interest in documenting significant DSS projects while key participants were still accessible, we felt that stimulation of critical reflection on the DSS experience could be valuable to a research community that by and large interpreted any past DSS 'failure' as a good idea being 'ahead of its time'—ahead of farmers' readiness for this technology. Controversially, the Special Issue openly confronted the possibility that the DSS for farming may be an idea 'whose future is past' (Ackoff, 1979; McCown, 2002b).

Mosaic. Agrifacts: Corn: MicroEssentials SZ Corn Zinc Rate Study. 2014. Mosaic.
Reference ID: 22339
Notes: #22339e
Abstract:
Objective
• Evaluate the yield response of MicroEssentials® SZ™ (12-40-0-10S-1Zn) compared to a MAP (11-52-0) + AS (21-0-0-24S) + ZnSO4 (0-0-0-16.5S-36Zn) blend at varying Zn rates.
Overview
• MAP + AS + ZnSO4 is often used as a fertilizer blend applied to corn.
• Nutrient recommendations often call for high rates of Zn due to uneven distribution and lack of crop uptake from a traditional blend.
• MicroEssentials SZ contains four nutrients fused into one nutritionally balanced granule, promoting uniform nutrient distribution, improved nutrient uptake and increased yield.

Ofori-Frimpong K., A. A. Afrifa, and S. Acquaye. 2010. Impact of Shade and Cocoa Plant Densities on Soil Organic Carbon Sequestration Rates in a Cocoa Growing Soil of Ghana. African Journal of Environmental Science and Technology, 4:621-624.
Reference ID: 22340
Notes: #22340e
Abstract: Cropping systems have influence on the conservation of soil organic matter. Soil samples were taken from a long term experiment that was designed to study the impact of shade and cocoa plant densities on cocoa yields. The impact of the treatments on soil organic carbon sequestration rates and the gains or losses of soil organic carbon under the treatments with reference to adjacent undisturbed bush were assessed. The experiment was sited at the Bunso substation of the Cocoa Research Institute of Ghana on Rhodi-lixic ferralsol with annual precipitation of about 1500 mm. The shade was provided by forest trees of 18 trees ha-1 and no shade, while the cocoa densities were 1111, 1428 and 1667 trees ha-1. Shade effects on organic carbon pools within the top soil (0-30 cm) under cocoa were not significant (p=0.05). Cocoa plant densities per unit area influenced the soil organic carbon pools. The soil organic carbon pools were significantly lower (p=0.05) in the closely planted farms than in the widely spaced farms. There were no soil organic carbon sequestration in the highest cocoa plant density of 1667 trees ha-1 but 250 and 190 kg soil organic carbon ha-1 yr-1 in the top soil (0-15 cm) were sequestered in the soils under cocoa with density of 1111 trees ha-1 for shaded and unshaded farms

respectively.
Irrespective of the shade conditions, the net gains of carbon in the soils were higher in farms with lower cocoa plant density. The results suggest that cocoa planted at low plant density under shade stores more carbon per unit area of soil than an equivalent area of cocoa planted at high density without shade. It is concluded that cocoa farming could be an effective means to mitigate carbon dioxide emissions in cocoa growing countries.

Richards N. 2011. Cocoa Nursery Manual: Plant Production and Nursery Operations for Cocoa Nurseries in the Philippines, USDA, ACDI VOCA.
Reference ID: 22341
Notes: #22341e
Abstract: A cocoa seedling or grafted rootstock produced in a nursery has potential to make money for the farmer it is sold to, and the nursery operator who produces it. This potential is governed by:
1. type and condition of planting materials used- approved clone bud wood, approved hybrid seed
2. the age and health of the seedling or rootstock
3. the efficiency of nursery management and operations
4. the method of transportation from the nursery and pre-transport treatment
5. what happens to the plant when it arrives onto the farm
Points 1-4 are covered in this manual, through photographs and discussion, to summarise the main steps and practices to follow to produce consistently high quality, healthy plants. Point 5 is determined by the climate, soil, farming practices and management skills of the farmer who plants the seedlings or clones. To ensure success in cocoa farming we must plant healthy plants, of the right age, at the right time, in the right place and free of pest, disease, nutrient or other defects. This manual will show the techniques and practices that will help farmers and nursery operators to achieve success in the production of healthy cocoa plants. It will also demonstrate common problems and how to deal with them or avoid them. Regardless of the size of the nursery, these steps should be followed. All nurseries should commit to such practices, regardless of the size of the operation. From the very beginning, quality control needs to be enforced. It will help to reduce losses, increase returns and to off set risks.

Ruffo M., R. Olson, and I. Daverede. 2016. Maize Yield Response to Zinc Sources and Effectiveness of Diagnostic Indicators. Communications in Soil Science and Plant Analysis, 47:137-141.
Reference ID: 22342
Notes: #22342e
Abstract: Maize yield is often limited by zinc (Zn) deficiency. The objectives of this study were to (i) evaluate maize yield response to Zn applied at four different rates, (ii) evaluate the yield response and agronomic efficiency of maize to the application of a complex fertilizer, MicroEssentials SZ (12N– 40P–0K–10S–1Zn), compared to different rates of monoammonium phosphate (MAP) + ammonium sulfate (AS) + zinc sulfate ($ZnSO_4$), and (iii) evaluate the association between tissue Zn concentration and soil-test Zn with the maize response to Zn fertilizer. Eleven experiments were carried out during the 2010, 2011, and 2012 growing seasons throughout eight states in the USA. Treatments consisted of four Zn rates of a physical blend of MAP + AS + $ZnSO_4$ (0, 2.24, 4.48, 6.72, and 11.2 kg/ha Zn) and MicroEssentials SZ at a Zn rate of 2.24 kg/ha Zn. Nitrogen, phosphorus (P), and sulfur (S) rates were

balanced across treatments (40 kg/ha P, 22 kg/ ha S) and fertilizers were broadcast and incorporated immediately prior to planting. Treatment and location main effects were significant ($P < 0.001$) on corn yields, whereas the interaction treatment × location was not ($P = 0.33$). Maize responded positively to Zn fertilization; average yields across locations increased from 10,540 kg ha-1 without Zn to 11,530 kg ha-1 with 11.21 kg Zn ha-1 applied as a physical blend. The yield response and Zn agronomic efficiency of maize with the application of the complex fertilizer at a rate of 2.24 kg Zn ha-1 averaged 1004 kg ha-1 and 448 kg maize kg Zn-1, respectively, significantly higher ($P < 0.1$) than the yield response and Zn agronomic efficiency with the application of a physical blend with the same Zn rate, which averaged 293 kg ha-1 and 131 kg maize kg Zn-1, respectively. The Zn concentration in plant tissue of unfertilized plots varied greatly and was not related to the maize response to Zn fertilizer ($r = 0.01$; $P = 0.98$). With respect to soil Zn, a negative but nonsignificant relationship was found between maize response to Zn fertilizer and soil-test Zn ($r = -0.51$; $P = 0.16$).

Wilmar International Limited. No Deforestation, No Peat, No Exploitation: Policy Progress Update (December 2013 - December 2015). 1-22. 2016. Singapore, Wilmar International Limited.
Reference ID: 22343
Notes: #22343e
Abstract: Wilmar is the world's largest processor and merchandiser of palm and lauric oils, with oil palm plantations in Indonesia, Malaysia, and West Africa. We recognize we have the responsibility and ability to steer the industry towards more responsible and sustainable practices, in order to maintain the competitiveness of palm oil.
In December 2013, we made a commitment to drive sustainable practices and accelerate transformation in the palm oil industry, by announcing our No Deforestation, No Peat, No Exploitation Policy (Integrated Policy). This Integrated Policy extends across Wilmar's entire supply chain, including our joint ventures and third-party suppliers, differentiating it from commitments that have been made by other companies. Its objective is to delink our entire supply chain from deforestation and exploitation by 2015. This report summarises our progress towards that objective, and identifies areas where more work is needed.

Yusof, O. Cocoa Planting Pattern Towards Mechanization Activity. 2016. Malaysia, Malaysian Cocoa Board.
Reference ID: 22344
Notes: #22344e
Abstract: Cocoa trees had been planted at 3m x 3m triangle spacing (1,111 trees /ha) for monoculture or inter-cropped with coconut (800 cocoa trees/ha). The planting densities and the planting pattern may be modified to allow usage of farm machineries in the field operation such as pruning, fertilizer application, insecticide spraying and transporting of the harvested pod to the fermentary.

Lim, C. K., Ng, H. C. P., and Goh, K. J. Nutrient Requirement and Input for Oil Palm on Mineral Soils. 2015. Malaysia.
Reference ID: 22345
Notes: #223435e
MOSTA Oil Palm Best Practices Workshop 2015, Miri, Sarawak 17-19 August 2015

Donough C. R., C. Witt, and T. H. Fairhurst. 2010. Yield intensitfication in oil palm using BMP as a management tool. Pages 1-8 IOPRI.

Reference ID: 22346

Notes: #22346e

Abstract: The gap between actual yield and maximum yield potential at a plantation may be partitioned into 3 components - Yield Gap 1 due to inefficiencies during plantation development and the immature period, Yield Gap 2 due to inaccurate assessment of nutrient needs, and Yield Gap 3 due to inefficient management of the mature stand. Gaps 2 and 3 can be corrected in existing mature plantations using the best management practice (BMP) concept developed by IPNI. In the concept, a set of selected BMPs are implemented in several full-sized blocks representing a plantation and assessed for agronomic, economic and environmental performance, in comparison to a parallel set of reference (REF) blocks. More than just the practices in themselves, it is the process of BMP implementation and evaluation that is the management tool, providing practical, commercial-scale evidence to guide decisions on investments for yield intensification. Since July 2006, IPNI has established 30 commercial blocks with BMP in collaboration with its plantation partners at 6 sites in Indonesia. Results todate show the robustness of the BMP concept and its applicability across a wide range of environmental and operating conditions. Bunch yield with BMP averaged 3.4t ha-1 (+15%) higher due to more (+9%) and heavier (+6%) bunches. Crop recovery BMPs including a short harvest interval are important for high bunch yield in the short term, while other agronomic BMPs related to canopy and nutrient management are important for sustained or enhanced yield in the longer term. Cost per unit area is higher with BMP, but higher BMP yield improves profitability at the farm gate. In the final year of the project, oil and kernel yields are being estimated. The BMP concept is a model for continuous improvement - a BMP that is successfully evaluated becomes current practice, and a new cycle of BMP evaluation starts.