AA RESEARCH NEWS

January, 87

CHAIRMAN'S ADDRESS

The success enjoyed by the Malaysian Plantation Industry over the last few decades owes much to the contributions made by both Research and Estate Management.

Research efforts have produced a steady stream of improved planting materials, better agronomic practices and innovative techniques all of which have served to increase potential yields and operational efficiency. On their part most Estate Managements have made use of these efforts to increase yields, reduce costs and most of all, increase profits.

Unfortunately palm oil prices have been seriously eroded during the past year as a result of pressure from other palm and vegetable oil producers. The steady price decline has dramatically affected the profitability of many plantation companies.

Nobody has a crystal ball for the future, but it is likely that the prices of all our major commodities will face increasing competition, as other countries strive to match our level of efficiency. If we are to survive and enjoy continued success, the efforts and co-operation of the past must be equalled if not bettered in the future.

It is our hope that the periodic issue of this newsletter will provide 'food for thought' at all levels and an added stimulus to overcome the challenges that lay ahead.

C.R. Brown
Chairman,
Applied Agricultural
Research Sdn. Bhd.

EDITORIAL

Let Us Communicate

It is said that this is the age of information exploision and rapid communication with the development of supercomputers, satellite telecommunications and rapid transportation systems. Yet on a personal level, how well do we communicate? Do we, estate managers, research officers, planting advisors, and directors really know one another; our work, our expertise, our professional feelings and experience? Except for a few instances brought about by regular meetings and professional visits, the answer is in the negative. Similarly, each of us is so engrossed in our daily work routine and sorting out the never-seem-to-end work related problems and matters that we seldom have time to read widely and have thus become unaware of the vast amount of information available which may have important bearing on the efficiency and quality of our work and the quality of our professional life.

One of the main functions of our research unit is to gather technical information, sort out those of direct relevance to improving our estate agronomic operations, evaluate them oftentimes with formal field trials, and then communicate the findings and recommendations to the estates in the form of technical papers and planting circulars. While this is an important means of disseminating technical information, it tends to be too formally structured, usually of irregular frequency and involves the usual handful of people in the discussions and decision making. There are many bits and pieces of information, not communicated through this formal channel, which may be of interest and may be put to good use by the innovative estate management. Similarly the concerned and interested manager may want to communicate his perceptions, experience and expertise to the people who draw up the agricultural policies and agronomic recommendations. The AA Research News is conceived with the idea of providing a channel for such communications, with the following stated objectives:

1. To objectively discuss and air topical subjects on planting practices and agronomy of plantation crops for the information of estate managers, visiting agents and directors;

2. To disseminate information on practical topics, new developments, breakthroughs (even in other crops) and products to associated estates;

3. To provide information on yield trends, prices and other statistics of interest to associated estates;

4. To provide a channel for communication or exchange between the estates and AAR.

5. To highlight achievements at AAR and associated estates to spur them to great heights.

While the bulk of the communications will be from AAR, managers, assistants, planting advisors etc., are also encouraged to contribute news and articles of a positive and objective nature to make this into an informative and useful newsletter. All contributions will of course be subjected to review by the editorial board and the principals.

There will be three issues per year and circulation is restricted to managers, assistants, principals, directors, visiting agents of AAR associated estates and AAR staff.

A.C. Soh
Editor

HIGHLIGHTS

POSITIVE RESPONSES TO VERY LOW PALM OIL PRICES

Introduction

The palm oil industry has recently experienced a very traumatic 1986 as prices plunged from about $800/= at the start of the year to a low of about $450/= per tonne before recovering to current (mid-November 1986) prices of $740/= per tonne.

As the industry braces itself for the anticipated lean years ahead, we should consider what further measures can be taken to maintain or even improve productivity to reduce costs of production and to examine possible cost saving measures which will have minimal effect on current and future productivity of the palms. In doing so, we should bear in mind these three features of the Industry:—

1) Predicted commodity prices are notoriously frequently wrong;
2) Long lag time required for palms to show responses to treatments;
3) Many costs on the plantations are fixed and already kept minimal.

Measures taken should not cause marked drops in yield or deterioration in growth of the palms which could increase actual costs of production already with their high fixed costs and capital charges. High standard of agricultural practices should therefore be continued in the plantations.

Productivity of Plantations

A simple analysis of the profitability of a plantation shows clearly why it is important to have high productivity:—

Revenue/ha of plantation = Productivity (t/ha) × Price . . . . . (1)

Expenditure/ha of plantation = Total expenditure (Fixed and variable costs) ÷ hectarage . . . . . (2)

Unit cost = Total expenditure ÷ productivity . . . . . (3)

Profit = Revenue — Expenditure
= (Productivity × Price) — Total expenditure

i.e. High productivity increases the revenue and decreases the cost per unit expenditure.

Managers, being the persons 'on the spot' and the implementors, have the most critical role to play to achieve high productivity and low cost figures.

The essential practices and inputs for high yields in oil palm plantations are well-known i.e.

1) Suitable planting sites;
2) Correct choice of planting materials;
3) Good nursery practices;
4) Establishment of good leguminuous covers;
5) Correct planting time and density;
6) Mulching with waste materials;
7) Minimal weed competition especially in immature palm areas;
8) Adequate and correct fertiliser applications;
9) Good soil and water conservation practices;
10) Retention of sufficient green fronds;
11) Minimal pest and disease losses;
12) Good and efficient crop recovery

and the combined contributions of the Visiting/Planting Advisers, Agronomists and the Managers should ensure that these conditions prevail.

The practices should all preferably be applied simultaneously as a whole package for best effects.

Ten commonly encountered problems in oil palm fields which cause low yields are:—

1) Poor seedlings from nurseries due to inadequate or uneven watering, inadequate spacing, small sizes at planting out or variable seedling selection;
2) Late establishment of leguminuous covers;
3) Infrequent or late ring weeding rounds at immaturity and/or highly competitive inter-row vegetation;
4) Inadequate fertilisation at immaturity and young mature palm stage;
5) Poor fertiliser application method;
6) Inadequate drainage in low lying areas;
7) Etiolation in mature and old mature palm areas;
8) Excessive pruning in young palm areas;
9) Inadequate attention to soil and moisture conversation measures especially in mature and old mature palm areas;
10) Inadequate preparation for crop recovery during peak periods.

Correct implementation and execution of all planting practices will eventually result in reduced costs due to the repetitive and cumulative nature of problems in the perennial crop plantation. An initial slight rise in costs may therefore sometimes be necessary to achieve the final objectives.

Briefly therefore, the requirements for CORRECT planting practices, TIMELINESS for good results, and proper SUPERVISION of work done are even more important now.

Specific Critical Planting Practices For Cost Reduction

In view of the uncertainties of price fluctuations, it is highly dangerous to omit any current planting practices or to try and 'save' costs by reducing actual inputs arbitrarily.

Emphasis should be given to getting value for money spent and trying to stretch the benefits obtained from all expenditure made. Careful checks on requirement for the work, timing and organisation are essential. Especially important areas in this respect are fertiliser applications, herbicide spraying for weed control, pest control and crop recovery and harvesting standards.

1. Improvement of Efficiency

Particular emphasis to practices which have useful multiplier effects and improve efficiencies of inputs at this time will be useful. These practices include:

1) Thinning out of palms in densely planted areas, runts and very low producers in old mature areas (>12 years);
2) Stacking of fronds for soil and water conservation;
3) Ensuring adequate field drainage;
4) Practising water conservation in drains in drought susceptible areas where possible;
5) Good pest control.

Particular case must also be taken that inputs to immature and young mature palms up to eight years are correctly applied and adequate for maximum productivity in view of the very high responses expected from these palms.

All spraying pumps and machinery, fertiliser applicators etc. should be regularly checked for proper functioning and calibration.

Chemicals used for spraying and fertilisers should be regularly checked for adulteration and appropriateness for application.

All recommended fertiliser applications should be applied correctly and on time for maximum benefit.

2. Substitution with cheaper alternatives

This approach may be highly rewarding in the following areas after the appropriate checks have been made:

1) Alternative cheaper fertilisers including use of available bunch ash;
2) Greater usage of by-products from the palm oil mill, in particular, waste bunches and cocoa pod husks in mulching to replace mineral fertilisers;
3) Replacing high cost field practices with alternative techniques e.g. frond placement in place of silt pits in mature oil palm areas and C.D.A. spraying techniques or U.L.V. sprayers for conventional knapsack sprayers in weed control.

3. Good Crop Recovery and Harvesting Standards

The final economic product is palm oil and kernel extracted from the FFB harvested and delivered to the mill. The efficiency of crop recovery (including internal and external estate transport) standards of ripeness at harvesting and loose fruit collection determine largely the quantum and quality of economic products obtained. All factors in this essential area should be therefore tip-top.

Conclusion

There is some scope to reduce costs on estates in a few specific situations by replacement and substitution of existing practices or materials with cheaper alternatives particularly the by-products from the palm oil mills. However the best results and costs are likely to be realised by continued good management practices and careful attention to details to improve the efficiencies of inputs made and maximise possible returns.

P.S. Chew

MAWA COCONUTS MAKE THE DIFFERENCE!

Most cocoa estates in Malaysia plant some permanent shade trees to provide shade or windbreak for the cocoa.

The choice of permanent shade tree is a subject to much debate. Most of the big plantation houses choose either coconuts or *Gliricidia maculata*, while, durian, mango and petai are also planted in the smaller holdings.

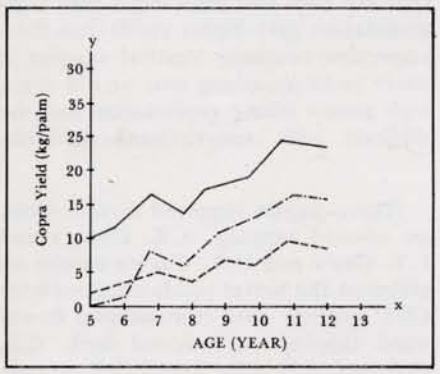
Although Gliricidia does not produce an economic crop, it appears to have gained greater popularity over coconuts in Sabah and also in some areas in Malaysia.

This is rather puzzling both from the economic and agronomic points of view. As greatest experience with shade tree for cocoa in Malaysia is with coconuts and the high profitability of the cocoa-coconut system has been proven, more extensive use of the improved MAWA hybrid coconut for shade trees should be encouraged.

If you are not convinced, read on:

Advantages of Using MAWA as Permanent Shade for Cocoa:–

1. An economic shade crop with potential high yields and profits;
2. Easily manageable shade from fixed canopy size;
3. Few pests and diseases;
4. Low labour and management requirements.
5. Superior yields of MAWA compared to traditional varieties.



Key

——— MAWA (Malayan Dwarf X West African Tall) Coconuts

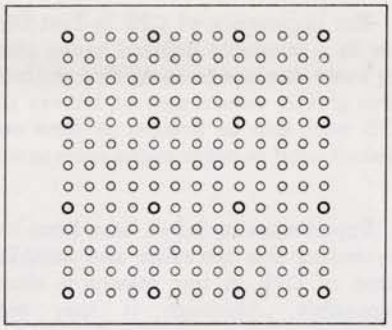
– – – – Dwarf (Mean Of Yellow, Red and Green Dwarfs) Coconuts

–·–·– Tall (Mcan Of MAT and San Blas Talls) Coconuts

Extra Profits from MAWA

At a low stand of MAWA e.g. 18m X 18m (30/ha) or 12m X 12m (69/ha) and with adequate manuring, MAWA's are unlikely to depress the cocoa yields significantly more than the Gliricidia planted at similar density.

MAWA at 12m X 12m and cocoa at 3m X 3m planting pattern may be planted below as shown.



○ Coconut at 12m X 12m (69/ha)

○ Cocoa at 3m X 3m (1042/ha)

At peak yields MAWA can produce 1725 kg copra/ha/yr (69 palms/ha X 25 kg copra/palm/yr) and the additional inputs involved are:

Manuring = $1.50 per palm per year
Upkeep = $0.50 per palm per year
Harvesting + processing = $0.20 kg/copra

Projected returns:

Gross revenue ($/ha) Copra prices		Total cost of manuring Upkeep + Harvesting & Processing ($/ha)	Net profit ($/ha) Copra prices	
$500/mt	$1000/mt		$500/mt	$1000/mt
863	1725	483	380	1242

L.H. Ooi

COMMODITIES: DO YOU KNOW?

– that the Kuala Lumpur Commodity Exchange (KLCE) celebrated the first anniversary of the revamped exchange at the end of October 1986, happily coinciding with a bull run on palm oil prices.

– that the KLCE will launch its palm kernel contract on 1st December 1986.

– that the prices of non-oil commodities are at their lowest level in recorded history in relation to the prices of manufactured goods and services according to Prof. Peter F. Drucker. He declared that the raw materials economy of the world has collapsed in contrast to the predictions of the Club of Rome, an international think-tank, ten years ago that desperate shortages of all raw materials were an absolute certainty by 1985. Global agricultural output rose by almost one-third between 1972 and 1985 to reach an all-time high.

– that estimated palm oil output in Malaysia for 1986 will be 4.6 million tonnes, an increase of 0.5 million tonnes for 1985.

– that EEC rapeseed production could reach between 4.3 and 4.4 million tonnes in 1987, up from 3.5 million tonnes this year and the record 3.68 million tonnes in 1985.

– that Ivory Coast oil seed production reached a record 225,000 tonnes in 1985–86, compared with 195,000 in 1984–1985.

– that USDA estimated 1986 soybean crops stocks were at 6.15 million bushels at end July 1987, higher than earlier expected.

– that US imports of Malaysian palm oil expects to increase:–

1984	1985	1986
208,400 t	261,800 t	600,000 t?

– that production and consumption of selected oils ('000 tonnes) (12 months to September 1986) are:–

Selected Oils	Production	Consumption
Soya bean	14,205	13,788
Sunflower seed	8,252	7,675
Palm	6,945	6,815
Rapeseed	6,750	6,744
Cotton seed	3,437	3,611
Groundnut	2,883	2,869
Coconut	3,026	2,957
Palm Kernel	1,066	1,054
	46,564	45,513

– that Novo Industri A/S of Denmark in conjunction with a food processing company has apparently developed an enzyme process to convert palm oil and stearic acid to cocoa butter. A pilot plant to produce this in Malaysia is planned.

THE OCTOBER BULL RUN ON THE PALM OIL MARKET

Naturally all planters have watched the palm oil prices nervously this whole year as it plummeted to about $450/= per tonne. Conferences, committees and estates in the country were galvanised to take stock and action to combat the impact of the very low prices. Then in October, there was a sudden reversal in sentiments in the futures market and despite no apparent dramatic changes elsewhere in the other commodity markets, prices soared up to $820/= per tonne done for February 1987 before some correction set in.

The bull run has been described as 'unusual'. A gleaning of the reasons presented to explain the rise in prices is given below:—

1. Anticipated stagnation of crude palm oil production until the end of October which has raised fears of uncertainties in supplies;

2. Overall tight squeeze in other oils, like coconut oil in the Philippines and palm kernel oil in world markets;

3. Poorer quality of US soybean oil;

4. Reduced palm oil supply at 4.6 million tonnes forecasted by the Treasury.

These do not appear to be substantial reasons and the higher relative prices now (November) may therefore be considered to be fragile. Unfortunately there is no room to relax still.

The recent OIL WORLD (Vol. 2 No. 4) newsletter has stated that vegetable oil prices are unlikely to keep rising in the next two to three months but upward pressure in prices should resume in early 1987 because of the sharp decrease in soybean oil production and soybean oil stocks. Let us hope that it is correct:

SORE POINT: COCOA POD BORER OUTBREAK IN PENINSULAR MALAYSIA

Two outbreaks of the cocoa pod borer (CPB), *Conopomorpha cramerella* (Snellen), have been reported recently. The first outbreak was in Jasin, Malacca and the other in Port Dickson, Negri Sembilan. In both outbreaks, the infestation levels were reportedly high and the moths common, indicating that the infestations could have started some time prior to detection.

The occurrence of CPB in Port Dickson in a relatively isolated cocoa planting some distance from the first outbreak gives greater reason now to believe that CPB may also be present or have established itself in other cocoa areas as well.

Experiences in Sabah have been that preventing the intrusion and establishment of CPB in our estates is almost impossible. Although it may seem pessimistic, it now appears that we have to accept that CPB will remain in P. Malaysia and all that we can do is to detect its presence in our cocoa areas at earliest and contain the CPB population at tolerable level of crop loss through appropriate cultural and chemical treatments.

AA RAT BAIT

The construction of AAR rat bait factory has been completed and the production of AA Rat Bait (0.05% warfarin) is expected to commence soon (the exact date will be announced). AAR staff's extensive research on the control of plantation rats and the development of a well known brand of rat bait and vast experience in rat bait manufacture and commercial rat control are maximally utilised in the development of the AA Rat Bait formulation. Therefore, AA Rat Bait may be considered as an improved version of the highly successful well-known brand.

Only high quality raw ingredients will be used and stringent quality control practised in the production of AA Rat Bait to assure good acceptance of AA Rat Bait to the rats, a main attribute of an effective rat bait.

Apart from getting highly effective baits, users of AA Rat Bait will also be getting AAR expertise in rat control which may not be available with many other brands of rat-baits.

RUBBER GROWERS CONFERENCE 1986

1. Introduction

The Planters Conference, renamed Rubber Growers' Conference 1986 was held from 20th to 22nd October in Ipoh, Perak. It was as usual organised by RRIM.

The theme for the Conference was 'Advances in and Modernisation of the Malaysian Rubber Industry', with the main aim of strengthening the country's competitiveness in natural rubber production *vis a vis* neighbouring producers, through more innovative methods to increase productivity and reduce production costs.

2. Paper Highlight

Papers were delivered on the 20th and 21st while a post-conference tour was organised on the 22nd.

A total of 26 papers was presented and papers of interest are highlighted below.

Under tapping and stimulation, a new concept of vertical tapping was presented by the RRIM which involves tapping in a vertical direction round the trunk of the tree. Preliminary results on renewed bark and basal virgin bark with stimulation gave higher yields than their respective controls. Vertical tapping is likely to be promising only on old virgin high panels where exploitation may be difficult with conventional methods.

Three papers reported further work on upward tapping. A.K. Phang's and L.T. Gan's and O.K. Chew's results reaffirmed the better yields obtained with CUT systems over conventional downward tapping on renewed bark. C.B. Goh and S.H. Lim found that tappers preferred continuous CUT system, for 2 years to yearly change of panel under commercial conditions, as psychologically, tappers felt that panels were still within easy reach at each biannual change-over of quadrant. Cup-hangers and cups also required less frequent changing of positions. On reaching the 4th quadrant, yields tended to collapse due to exhaustion of drainage areas.

The usefulness of RRIM's results over 30 months on less labour intensive system with stimulation on panel BO-1 of modern Hevea cultivars tends to be invalidated by the unknown long term effects of stimulation on the clones. Polybag collection of latex as advocated as a means of reducing labour continues to face the problem of theft.

Papers on reduction of immature period reemphasized the need to ensure proper preparation of stumps during the preplanting stage such as proper topping, tailing, length of tap-root, white-wash, hormone treatment and also the importance of moisture during the post planting phase. By raising stumps in large polybags to develop an active root system prior to transplanting, better establishment success has been achieved. Despite the good establishment success reported for such trials on small plots, planters continue to show a wary stance towards such APM's where large scale planting is involved. Gan L.T. and O.K. Chew opened trees earlier (40 cm and 45 cm) than conventional (50 cm) and reported immature period could be reduced by 6 to 12 months. As a result of earlier yield and lower cost to maturity, higher cumulative revenues over 4 years from opening were obtained with earlier opening. However, as long term effects of early opening and stimulation on future performance of trees are still not well documented as in conventional opening and further monitoring of results would have to be carried out.

Higher incidence of dryness of 15–20% was recorded in the initial years of tapping on modern precocious clones, principally PB235 and PB260, by Leong and P'ng and also by Sivakumaran *et al.* In the light of these evidences, precautionary measures such as planting a much higher stand, employing isolation groove to check spread of dryness and possibility reduction in intensity of tapping, would have to be adopted to minimise dryness incidence.

Overall, there was generally little new development emanating from the Conference. However there were indications that certain old concepts e.g. stumped buddings, were being reexamined from a different view-point. Hopefully these could be translated to commercially viable practices in the near future.

W.H. Chan

SEMINAR ON REVITALIZATION OF INDUSTRIAL CROP INVESTMENTS IN SABAH DEC. 1986

1. Introduction

The two day (3rd & 4th Dec. '86) seminar held in Kota Kinabalu was organised by the Institute for Development Studies (IDS), Sabah.

A total of eight papers including one from AAR was presented.

2. Paper Highlights

The Deputy Chief Minister of Sabah, Datuk Chau in his keynote address pointed out that there are many incentives for those willing to invest in Sabah. Two major constraints with regard to land alienation will be amended soon. They are:–

1) The provision that requires not less than 40% Bumiputra ownership and;

2) The share transfer fee of $1000/acre.

The profitability of industrial crop investment in Sabah as summarized by DIS is reproduced in Table 1.

The question of agricultural financing particularly for projects that have cash-flow problems was a hot topic.

A merchant banker offered the following fund raising recommendations:–

1) Existing financial institutions and arrangements particularly Bank Pertanian Malaysia and the New Investment Fund should be tapped more vigorously and aggressively;

2) Financial institutions and companies involved in industrial crops to issue bonds to raise funds and;

3) Privatization of Sabah Development Bank by listing it on the stock exchange.

TABLE 1 – RESULTS OF STUDIES ON INDUSTRIAL CROP INVESTMENT IN SABAH

Crop/Author	Financial IRR (%)	Product Price ($ per tonne)	Assumed Estate Size (ha)
Cocoa			
Ti and Gunting (1983)	17	4000 (dry beans)	1000
SDB (1984)	14	4000 (dry beans)	200
Wurcker and Salam (1985)	14	4000 (dry beans)	500
Oil Palm			
Ti and Gunting (1983)	13	160 (ffb)	1000
Ho (1986)	17a	805 (CPO) 287 (PK)	5000
Coconuts			
Ooi and Chew (1986)	13b	700 (copra)	–
	22c	700 (copra) & 4500 (cocoa)	–
Mixed fruits			
Fung (1986)	19.6	2000 (Durian)	60
		500 (Rambutan)	20
		1000 (Oranges)	60
		700 (Mango) &	40
		600 (Passion fruit)	20
Pepper			
Fung (1986)	15.6	4000 (Black pepper)	80
Tea			
Fung (1986)	16.3	5500 (Bulk tea)	300
Coffee			
Fung (1986)	13.1	5500 (Hulled beans)	200

a – Investment includes a 40 tonne per hour mill
b – Monoculture MAWA Coconuts
c – Cocoa/Coconut intercropping

L.H. Ooi

THE AA TEAM

Applied Agricultural Research Sdn. Bhd., was officially formed on July 1, 1986, with the following constituting its Board of Directors.

BROWN, C.R. (CHAIRMAN)
LEE, OI HIAN
DAY, R.B.
ONG, BENG KEE
TAN, SENG YEANG
TAUFIK YAHYA

The research and executive staff comprises a very well balanced team of highly qualified and experienced research officers, each with his/her own specialization.

CHEW POH SOON
M. Agric. Sc. – Malaya, 1971

Currently Head of Agricultural Research and was for the past 20 years agronomist and Head at HRU. Well versed with the agronomy of the major plantation crops with a special bias towards oil palm agronomy. Active in the professional affairs of the oil palm industry e.g. MOPGC-ARC, PORIM TAC.

Rubber Agronomy

CHAN, WENG HOONG
B. Agric. Sc. (Hon.) – Malaya 1973

A senior research officer. Was a rubber agronomist with HRU for 14 years. Specialises in exploitation and reduction of immaturity period studies.

ONG, TEE SAN
B. Agric. Sc. (Hon.) – Malaya 1972

Senior research officer previously with Taiko Plantations as rubber agronomist for 10 years and prior to that, rubber advisory officer with RRIM. Specialises in clonal recommendations, budding techniques and disease control.

KAYAROGANAM, P.
M. Sc. – Madras 1977

Assistant research officer. Was first as plant physiologist with ARAB before joining Taiko and currently AAR as rubber agronomist. Responsible for investigations on rubber wood utilization and yield improvement on poor rubber areas.

Oil Palm Agronomy

CHEONG, SIEW PARK
B. Agric. Sc. (Hon.) – Malaya 1973

Senior research officer and oil palm agronomist with emphasis on studies on factors maximising yield in estates, yield forecasting, soil survey and feasibility studies besides advisory work. Started his professional career as soil scientist in RRI, then agronomist at UP, Agromac, HRU, Taiko and now AAR.

TEOH, KOK CHOON
M. Agric. Sc. – Queensland 1973

Senior research officer specialising in oil palm agronomy with particular reference to diagnosis of nutrient deficiencies, fertiliser requirement and efficiency of fertiliser usage and run-off studies. Was a cocoa and coconut agronomist at MARDI and oil palm agronomist at HRU for 6 years and 7 years previously respectively.

KEE, KHAN KIANG
Ph.D. – Canterbury (NZ) 1981

Research officer in oil palm agronomy, with responsibilities in soil survey and feasibility studies, irrigation, and crop yield potential and maximisation studies. Was previously oil palm agronomist at HRU for 5 years.

MOHD MAT MIN
B. Agric. Sc. (Hon.) – Malaya 1977

Research officer. Specialises in pest and disease control and research. Was an estate assistant in HMPB's cocoa and coconut estate for 5 years and oil palm agronomist at HRU for 5 years.

Cocoa and Coconut Agronomy

OOI, LING HOAK
B. Agric. Sc. (Hon.) – Malaya 1976

Senior research officer specialising in cocoa and coconut agronomy, breeding, advisory and also feasibility and economic studies on plantation crops. Was cocoa and coconut agronomist at HRU from 1977–1986.

GOH, KAH JOO
B. Agric. Sc. (Hon.) – U.P.M. 1982

Assistant research officer responsible for studies on cocoa V.S.D., nutrition and field experimentation besides advisory. Prior to this, was oil palm and cocoa agronomist at Taiko.

Chemistry and Analytical Services

CHAN, KHOON SAN
B.Sc. (Hon.) – Malaya 1971

Senior research officer and chemist. Was with HRU for 16 years. Specialises in effluent studies and consultancy, urea volatilisation and amendment studies and organic fertiliser formulation besides providing soil and plant analytical services.

Plant Breeding

SOH, AIK CHIN
Ph.D. – Oregon 1980

Senior research officer and plant breeder. Was previously a plant breeder with HRU (1979–1986), a lecturer in University of Malaya (1974–1976) and a cocoa agronomist at Felda (1971–1973). Responsible for oil palm breeding and seed-production, advice on field plot technique and statistical analysis and on feasibility of alternative crops for plantations.

Tissue-Culture

WONG, GIRLIE
M.S. (Hort.) – N. Carolina 1977

Research officer and tissue culturist specialising in the tissue culture of oil palm and other crops. Held same position at HRU from 1982–1986 and prior to that was tissue culturist at MARDI.

TAN, CHENG CHUA
B.Sc. Agric. (Hon.) – Leeds 1980

Research officer and tissue-culturist with special interest on other crops and studies on acclimatisation of in vitro plantlets. Also doubles as specialist in AAR computerisation process. Formerly was advisory officer, then tissue culturist at HRU for 5 years.

The research team is very ably assisted by Mr. Chen Kok Chin, administrative assistant and a competent and dedicated team of technical and administrative staff as follows:–

Ahmad Kalimin
Alice Thomas
Ambarasu Karuppanan
Asmah Zakaria
Azman Shah
Bacho Ampo Sappe
Balakrishnan Vaiapuri
Barry K.
Chong Siew Peng
Denny Kasim
Evelyn Loang
Gopal Kulandai
Hamsiah Mujir
Krishnan K.
Lee Siew Oie
Letchumy Thandy
Lily Loo Ah Lay
Lim Lee Hua
Mahendran S.
Maznah Abu Bakar
Mohd Apandi Husin
Muthukumaran Velu
Nadisin Anggalan
Nagarajan Ramasamy
Noraini Mohd Noor
Norfazilah Abdul Latif
Nuar Paras Khan
Periasamy Arunaslam
Ramli Aziz
Rosita Mohd Akhir
Rukumani Devi
Sandrasegeran Veerapan
See Choon Mooi
Subramaniam Thandarayan
Subramanian V.
Sulimah Osman
Tan Kim Ha
Tan Lei Hong
Thangamaniam C.
Yee Kiat Cheng
Yee Kiat Ng

AAR TECHNICAL PAPERS 1986

AAR Technical Papers are internal reports and papers of technical nature, some of which, if they are of a scientific nature and of general interest, may be submitted for publication in professional journals or presented at professional meetings.

Paper No.		Authors
1/86	Report on the detailed soil survey of Bumi-Day Estate	KKK
7/86	Preliminary assessment of areas due for re-planting into oil palms in 1987 and 1988 at Jeram Padang Estate	KKK
8/86	Initial measures against cocoa pod borer *Conopomorpha cramerella* (Snellen) in P. Malaysia	MMM
18/86	Effect of palm oil sludge cake on early growth of newly planted oil palm, rubber and cocoa in the field. Planter (1986) 62: 368–382	TKC, CWH & OLH
4/86	Abnormal oil palm clones – possible causes and implications:– further discussions. Submitted to The Planter.	SAC
12/86	Current issues in oil palm breeding. *Presented at National Symposium on Genetics and Breeding of Crops and Animals. U.K.M. 11–13 Nov. 1986,*	SAC
10/86	Genetic engineering of crop plants in perspective. Submitted to The Planter.	KOH, C.L. & SAC
14/86	Present status and prospects for coconuts *Presented at IDS Seminar on Revitalization of Industrial Crop Investments in Sabah K. Kinabalu 3–4 Dec 1986. Submitted to the Planter.*	OLH & CPS
2/86	Report on the intensive course on agricultural applications of plant tissue culture.	TCC

11/86 AAR Recommendations on rubber clones for planting (1986–1991) OTS

SUMMARY

The right choice of high yielding clones based on enviromax principle is a matter of paramount importance.

The factors taken into consideration in the choice of clones are yield, secondary characteristics of the clones and constraints imposed by the environment.

The selected clones are grouped into three main classes on the following bases:–

a) Class 1 clones : High yielding, well proven, minimum risk involved. Clones in this class are RRIM600, PB260, PB217, PB28/59.

b) Class 2 clones : High yielding, moderate experience, moderate risk involved. This class has only 1 clone i.e. PB235.

c) Class 3 clones : Very promising trial yields, inadequately proven, high risk involved. Subclass 3A has longer yield records than clones in subclass 3B. 3A clones are PB254, PB280, PB255, PM10, 3B clones are RRIM901, PB330, PB314, RRIM712, PC51, PC55.

The strategy of planting is to ensure that only adequately proven clones according to environmax principle are planted out on large scale. However some provision is made to plant the lesser proven and speculative clones in areas where on current information they are expected to perform better than existing proven high yielders. Class 3 clones are suggested to be planted in evaluation blocks of about 10 ha each alongside Class 1 clones to enable us to build up our own commercial data and experience.

3/86 Reduction in immaturity period of rubber-modified technique of stumped budding in polybags CWH

SUMMARY

The long immaturity period of rubber is one of the major draw-backs of rubber.

Of the various types of planting materials used, stumped buddings have proven in trials to be the most promising.

However in commercial plantings especially undertaken on a large scale, success has been variable, and, in many cases, disappointing due to logistics involved in transplanting and susceptibility to moisture stress post-transplanting.

A modified technique of stumped buddings, prepared from conventional buddings in smaller polybags, stumped at 2½m of brown bark prior to transplanting and also assisted by reduction of tap-root growth through use of a growth retardant is proposed for commercial scale planting.

5/86 Vertical cuts for hevea. CWH

SUMMARY

A novel method of exploitation, "Vertical Cuts", is proposed to exploit high virgin panels.

Vertical strips of bark are tapped, moving circumferentially in an anti-clockwise direction.

The following advantages are envisaged:

1) Tapping may be confined to only the high yielding virgin bark;
2) Productive life span of Hevea may be extended, area under immaturity reduced and economic timber value of trees increased. Clones with self branch-shedding characteristics such as PB217, PB235, PB260, PB5/51, GT1 could be exploited in a vertical direction up to as high a trunk height as tapping will permit;
3) Mechanisation of tapping may be possible.

Very high yields have been obtained in preliminary observations.

6/86 Exploitation of Hevea whose existing panels have become dry. CWH

SUMMARY

Tree dryness is a well known disorder to Hevea which has not found a remedy once affliction has set in. This disorder has become increasingly prevalent in recent years on young mature rubber of high yielding cultivars e.g. PB235, PB260.

Control measures are solely preventive as curative treatment is not available presently.

Method of exploiting 'dry trees' consists of:–

1) Isolation of afflicted and yielding bark to arrest spread of the disorder;
2) Reduction in the exploitation intensity with respect to length of cut i.e. 1/2S to 1/4S.

Procedure for carrying out the above is outlined.

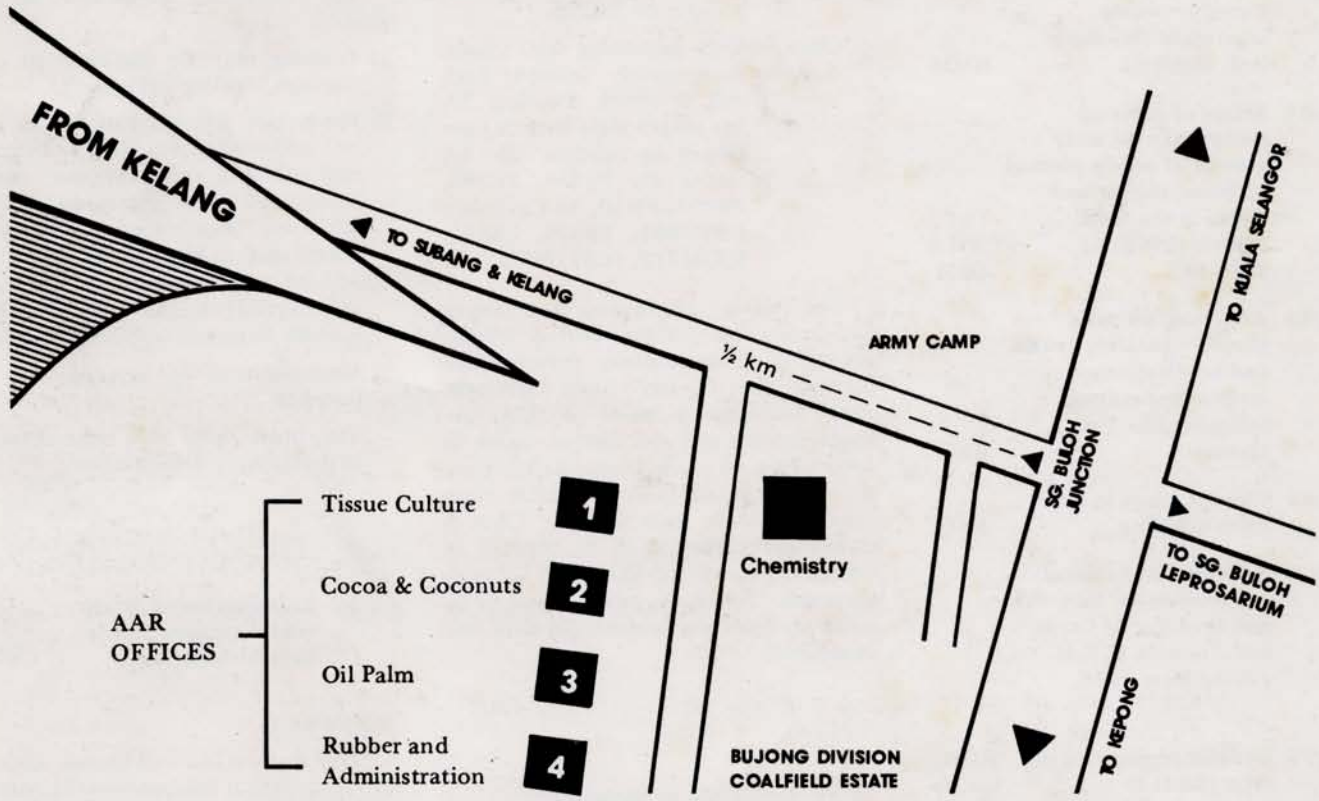
13/86 Establishment of Young Buddings **OTS**

SUMMARY

The new technique for rubber propagation using young buddings was tried out in a few TPSB estates from 1984–1986 after the RRIM introduced it in commercial scale planting in 1983. From the experience gained, it has been shown that the technique is practical and can be easily implemented. Basically it involves the raising of healthy seedlings and (later) buddings by adequate watering and application of nutrients and pesticides, and subsequently, leaving a long snag above the budpatch for vigorous and healthy growth of the scion shoot. Use of young buddings encompasses a number of advantages, namely, reduced cost of planting material, shorter period of preparation, greater ease, speed and flexibility of transplanting besides negligible transplanting shock. The final field stand has been found to be much more uniform than conventional buddings, and growth is comparable to the latter after 1–1½ years of field planting. The technique is now widely adopted in TPSB estates.

WHERE WE ARE AT

AAR occupies the former K.L. Kepong Housing Complex,
near the junction of the KL–K. Selangor and Subang–Sg. Buloh roads.



SPECIFIC RECOMMENDATIONS CONTAINED HEREIN SHOULD ONLY BE IMPLEMENTED WITH PROPER AUTHORISATION.