Newsletter BERITA ISOPB
THE INTERNATIONAL SOCIETY FOR OIL PALM BREEDERS
PERSATUAN AHLI-AHLI PEMBIAK BAIK KELAPA SAWIT ANTARA BANGSA

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EDITORIAL

The short feature article in this issue is remarkable if only because, while obituaries of humans are commonplace and that of animals a tale for schoolchildren worldwide, an obituary for a palm is very rare reading. That the deceased is SP 540T is sufficient explanation and who better to tell of the demise than Dr. Kabul Palmin caretaker during its final two decades or so. Dr. Kabul Pamin of IOPRI was plant breeder at RISPA, the successor to AVROS, and is the ISOPB regional representative for Indonesia. SP 540 made many an oil palm breeder's task easier.

Oil palms are grown in about 50 countries in the tropical regions of the world, 15 of them in the American continent. Production there is however relatively small because of some dreadful diseases and a tradition for other crops. However, it is the home of Elaeis oleifera the only known cousin of E. guineensis . The ISOPB, in keeping with its internationl stature organised a symposium in Colombia and field visits in Costa Rica in June this year. Reports on both are also given in this issue.

CONTENTS THIS ISSUE

FEATURE ARTICLE I

OBITUARY

Gusty wind on late afternoon of 26 August 1995 struck fatally SP 540 palm in Sungei Pancur, North Sumatra, caused the tree felled down. The wind that swept the area also destroyed thousands of rubber trees and uprooted more than two hundred mature and young palms planted in Sungei Pancur. Some of young palms still can be rescued, but old SP 540 with trunk more than 25 m height was not possible to rescue it.

The history of SP 540 dates back 74 years ago, when the seeds were imported from the Eala Botanical Garden, Zaire by the "Algemeene Proefstation der AVROS" (APA), a research institute founded by Algemeene Vereniging van Rubber Planters ter Oostkust can Sumatra (AVROS). From 100 seeds received on 12 November 1921, only 13 seedlings survived and were transplanted in the field at Sungei Pancur Experimental Garden in April 1923, to which it segregated into 8 duras and 5 tenera palms, so that it was assumed that the seeds came from open pollinated dura x tenera palms. One of the 5 teneras, registered as SP 540 was among very few palms survived, when most of the oil palm were felled down in 1938 - 1939 to give the land to rubber, that was considered more important crop than oil palm.

For more than fifty years, SP 540 has been being used as important source of male parents. Its important characters among others are high bunch number of medium size fruit, high mesocarp to fruits and oil to bunch ratios. The last two characters contributed to high extration rate which is readily transmitted to the progeny.

Pisifera trees descended directly through selfing of SP 540 T (referred as "SP 540 pisifera") and SP 540 crossed to pisifera of Bangun (referred as "AVROS pisifera") has been being used extensively as male parent in the breeding programme in many oil palm research institutes around the world. The performance of SP 540 pisifera and AVROS pisifera in similar, both showed high GCA value in many crossings. Higher oil yield compared to other populations was attributed to a very high mesocarp to fruit and oil to bunch percentage.

The contribution of tenera SP 540 to the high yield potential was remarkable and through conventional breeding method and tissue culture the good characters of SP 540 was preserved for the next generation. Through conventional breeding method, since it was started in 1930, there were 5 generations of crossing, including selfing, was conducted by the Indonesian Oil Palm Research Institute (IOPRI). The evaluation of SP 540 or AVROS derivatives was being continued.

An attempt to save this very famous SP 540 palm as an important oil palm germplasm collection was also made through tissue culturing of the dying trees. The culture has been preserved in cryopreservation as ex situ germplasm collection in the laboratory.

Dr. Kabul Pamin
Indonesian Oil Palm Research Institute (IOPRI)
8th November, 1995
Medan

(editor's note : This write-up is deliberately left unedited as an edited version could well be richer English but a poorer obituary).

FEATURE ARTICLE II

REPORT ON:

ISOPB SEMINAR

ON

"WORLDWIDE PERFORMANCE OF DxP MATERIALS,
OxG HYBRIDS AND CLONES"

and

XI FEDEPALMA CONGRESS

plus

VISITS TO : LAS FLORES PLANTATION AND SEED PRODUCTION UNIT (COLOMBIA)

: ASD DE COSTA RICA, A.S. (COSTA RICA)

and

: CATIE (COSTA RICA)

2nd - 18th June 1995

Report By:

V.RAO

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ISOPB SEMINAR (5TH - 6TH JUNE 1995)

This international seminar on "Worldwide performance of DxP materials, OxG Hybrids and Clones" was held at the Hotel EL Prado (in conjuction with the XI FEDEPALMA Congress) in Baranquilla, Colombia on 5th and 6th June 1995.

ISOPB, the International Society for Oil Palm Breeders Organised the seminar. FEDEPALMA, the Colombian Oil Palm Growers Association, through their R&D Section (CENIPALMA) assisted in this event by providing some funds and secretarial assistance. BUROTROP sponsored two scientists from Africa to attend the seminar.

The following 15 papers were presented and the ensuring discussions were particularly stimulating. The brief notes on each paper were prepared by Dr. Soh Aik Chin of Applied Agric. Research, Malaysia, as also the one page note on FEDEPALMA Conference and visit.

SESSION I

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World wide performance of oil palm planting materials.
Rajanaidu, N. and Jalani B.S.
Palm Oil Research Institute of Malaysia, Malaysia.

By year 2020 palm oil will likely capture 50% of world's oil and fats trade. There will be an annual requirement of 120 million oil palm seeds.
Out of about 20 seed suppliers in the world 15 are supplying Deli x AVROS or AVROS derived materials constituting about 60-70% of the seeds supplied.
Varieties with special traits e.g. dwarfness, high kernel and vitamins A and E contents will make the scene soon.

Performance and Selection Progress of the Second Cycle
of Oil Palm Breeding at Marihat - IOPRI.
Adlin U. Lubis, A.R. Purba, Akiyat, E. Syamsuddin, R.A. Lubis.
Indonesian Oil Palm Research Institute (IOPRI), Indonesia.

The selection progress of the RRS2 hybrids over the RRS1 hybrids is 5.3% for FFB yield and 6.9% for oil yield, the improvements attributed to bigger bunches and improved within bunch components.

Testing and Selecting oil palm parental trees using progeny
testing procedures.
Sterling, F., Alvarado, A., Montoya, C. & Richardon, D.L.
ASD, Costa Rica.

The authors outline the progeny testing procedures to estimate the combining ability of the parents and the set up of a selection index to help in the choice of parents for breeding and seed production.

Comparative Performance of DxP hybrids of Ulu Remis *Deli duras* with the *pisiferas* derived from URT, URT x AVROS origins.

Yong, Y.Y. and Chan Kok Weng.
Guthrie Research Chemara, Malaysia.

DxP progeny groups of URTA and URTC are comparable in FFB yield with URT but are variable within group. Three pisiferas P12 (URTA), P16 (URTC) and P18 (URTC) give progenies which are about 15% higher oil yielding than the control, P12 achieved it due to bettr oil to bunch while P16 and P18 to better FFB yield. URTA pisiferas P9 and P13 and URTC pisiferas P21 progenies are comparable to control in oil yields but give lower heights and better oil to bunch. URTA P4 progenies achieve similar oil yields to the control through better oil to bunch. These 7 pisiferas have been recommended for use in commercial seed production.

Comparative performance of interspecific hybrids and commercial DxP *E. guineensis* material.

Amblard, P.
CIRAD, France.

Reviews the performance of OxG F1 hybrids against DxP materials. Results have been disappointing. The average oil yields of the hybrids were about 1/2 those of commercial DxP although the best hybrid progenies come close but not so when compared against the best DxP progenies. La Me teneras combine better with all the different sources of Oleiferas, with La Me x Brazil achieving the best oil yield at 78% compared to the DxP control.

Interest in the OxG hybrids centres on the following attributes:

High iodine value (oil unsaturation) of 60-80 as compared to 50-55 for Guineensis

Low height of about 20 cm/yr compared to about 60 for Guineensis

Tolerence to Bud Rot and Fusarium Wilt

Unfortunely infertility and consequently yield limits commercial exploitation of the F1 hybrids. While cloning fertile high yielding hybrids offers a quick solution the risk of abnormal ramets has to be contented with as in Guineensis. Backcrossing offers surer success but takes longer time and effort. This can be expedited if markers and early screening techniques for the desirable traits can be found.

Performance of DxP planting material in Papua New Guinea.

Frederic Dumortier.
Dami Oil Palm Research Station, Kimbe, Papua New Guinea.

The oil palm industry in PNG started in 1967 and by 1995 has grown to 67500 ha, half of which is owned by 5 plantation companies and the other half by smallholders. Although climatic conditions are very favourable for oil palm growth, there exist limiting factors e.g. mineral deficiencies, soil depth and drainage and social economic conditions in various parts of the country causing yields to vary fron 13 to 30 t/ha/yr. With current management practices average yields of 26 tonnes can be sustained from 5 to 20 years after planting. Recent plantings at 120 p/ha density appear to perform better by 1.5 t/ha than those planted earlier at 135 p/ha.

Oil extraction rates average close to 23% with the best achieving 24%. Kernel extraction rates average about 5% rising to 6%. Oil extraction rates appear to be well correlated to number of sunshine hours. Since the early 1970's most of the plantings have been with Dami D(Deli) x P(AVROS) materials.

Because of the very inbred nature of the parents there is very little genetic variation among the DxP progenies. However, progenies yielding 13.5 t/ha total products i.e. oil + kernel and oil to bunch of 36% have been claimed.

Mechanisms of stabilizing high yield of fresh fruit bunch in the oil palm (Elaeis guineensis Jacq.) and the performance of NIFOR DxP.
Okwuagwu, C.O.
NIFOR, Benin City, Nigeria.

Using the path coefficient (standardised partial regression) approach on the contributions of the components, bunch number and bunch weight to FFB yield, she identifies 2 progenies which are able to maintain high yields under different environmental conditions using different mechanisms. In one progeny, each individual tree is able to adjust to give high bunch number in a year which favours bunch number development and to give heavy bunches in a year which favours bunch weight thus maintaining high yields. In the other progeny the individuals vary in their performance by minor adjustments in the components but the average performance remains the same in the two environments i.e. individual and population buffering mechanisms against environmental changes respectively.

SESSION II

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Performance and heritabilities of growth and bunch component characters of interspecific hybrids *(Elaeis guineensis x Elaeis oleifera).*
Kabul Pamin, Tri Hutomo, Purba, A.R.
Indonesian Oil Palm Research Institute (IOPRI), Indonesia.

In 4 trials comparing Brazilian and Surinam hybrids with DxP, Brazilian hybrids give better FFB yields than DxP and better bunch qualities than Surinam hybrids but still not as good as DxP.
The Surinam backcross hybrids although still lower yielding than the DxP give 5% higher O/B than their F1 hybrids and lower vegetative growth and more compactness.
Their unsaturated fatty acids however are 10% lower than those of the F1's.
Further backcrossing is suggested.

Performance of OxG (*Elaeis oleifera* Central American and Colombian biotypes x *Elaeis guineensis*) interspecific hybrids.
Sterling, F, Richardson, D.L., Alvarado, A., Montoya, C. and Chaves, C.
ASD, Costa Rica.

Performance of *Elaeis oleifera* (Surinam) x *Elaeis guineensis* hybrids.
Rajanaidu, N., Chin C.W. and Jalani B.S.
PORIM and FELDA, Malaysia.

The pure Surinam Oleifera is characterised by its very small size, very slow growth and small inflorescences. In PORIM's 8 Surinam x AVROS pisifera hybrids the FFB yields (first 4 years) range from 85 - 144 kg/p/yr while oil to bunch varies from 4.9 to 9.2.
At FELDA hybrids with Yangambi teneras give 120.5 - 137.8 kg/p/yr as compared to 99.4 kg/p/yr for hybrids with La Me teneras.
FELDA's hybrids give better oil to bunch at 11.5%.
A backcrossing programme is suggested.

SESSION III

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Early performance of oil palm clones produced by IOPRI.
Adlin, U. Lubis, Gale Ginting, A.R. Purba, Subronto.
Indonesian Oil Palm Research Institute (IOPRI), Indonesia.

Inheritance of the mantle fruit abnormality in oil palm clones.
Rao, V. and Christopher Donough.
EPA and PAMOL, Malaysia.

Discuss in detail the similarities and differences in the mantled fruit character in genetic (natural) and clonal palms. Show that even for genetic mantling earlier suggestion of single dominant gene inheritance can be questioned. Similarly the early suggestion of maternal inheritance of clonal mantling based on results from open pollinated progenies of mantled palms is discreditd by results from sexual crosses. PAMOL results show that selfing or crossing of apparently normal ramets can produce mantled palms, the frequency of which increases with the abnormality severity of the parents. PORIM's results give only one mantled palm in both the selfs and the crosses but higher frequency of high parthenocarpy palms which appeared to be related to abnormality in the parents.

Present status of clonal propagation of elite palm (*Elaeis guineensis*) by tissue culture of immature inflorescences in Costa Rica.
Guzman, N.Z.
ASD Costa Rica.

The most successful lab using inflorescence explants todate. Using immature inflorescence explants minimises damage and risk of mortality to the selected ortet. Adult palms of pisiferas, duras, selected commercial teneras and progenies of their Compact Palm have been cloned.

Performance of oil palm clones.
Durand-Gasselin, T.
CIRAD-CP, France.

Claim that the oil production of the first generation clones are better than the standard DxP cross by 12%. The 10 best clones and the best clone give 27% and 44% superiority respectively. Compared to the commercial DxP materials from the second cycle RRS breeding programme, the improvements are 13% and 28% respectively. Clones obtained from the second cycle RRS progenies are expected to be even better. Selection for resistant clones to Ganoderma, Blast and Fusarium will be easier.
Exploitation of the best clones is hampered by the spectre of abnormality. The quest of an early screening technique becomes more urgent. Their purported protein marker for abnormality does not work.
Recloning from ramets and propagation through liquid suspension cultures have given higher levels of abnormality.

XI FEDEPALMA International Oil Palm Conference
Baranquilla, 7th - 9th June 1995.

This is a biennial conference organised by FEDEPALMA, the oil palm growers Association of Colombia the largest oil palm grower (300 000ha) in South America.

The following papers were presented.

MODULE 1 : MARKETING AND COMPETITIVENESS OF OIL PALM IN COLOMBIA AND THE WORLD.

Perspective of Oil Palm in the world market of Oils & Fats. The Consumer's perspective.
Dr. Robert McCoy, Consultant, United States.

Perspective of Oil Palm Crops in some Latin American countries (Costa Rica, Ecuador, Peru, Venezuela & Colombia)

Domestic Marketing of Oil Palm in Colombia.
Hernando Riveros Serrato, Juan Manuel de Castells, Colombia.

Competitiveness of major palm oil, oil and oilseed producing and processing countries.
Dr. James Fry - Landell Mills Commodities Studies, England.
Panel on competitiveness :
. *Carlos Murgas Guerrero - Hacienda Las Flores, Colombia*
. *Jose Antonio Estevez Cancino - Palmas de Casanare, Colombia*
. *Jaime Gomez Munoz - Palmas de Tumaco Ltda. and Palmar de Oriente Ltda., Colombia*
. *Armando Corredor Rios - Fedepalma, Colombia Chairman: Carlos Alberto Corredor Mejia - Palmeiras S.A., Colombia.*

Policies Supporting the Oil Palm Industry in:
. *Malaysia, Dr. Jalani Sukaimi and Dr. Abdul Malek - PORIM*

MODULE 2(a): PALM OIL MILLS

Clarifying pans with centrifugal force and static clarification. The use of low dilution in press system. *Manuel Serrano Retana - Palma Tica, Costa Rica*

Presses for oil extraction from empty bunches. German Cala gaitan - Proyecto Coto Sur, Costa Rica

Cost-benefit ration of expeller extraction and combination with solvents. *Jose Luis Carrasco - De Smeth Colombia Ltda., Colombia*

Energy savings. Steam Management. *Andres Echeverry - VR Ingenieria y Mercadeo, Colombia*

Energy generation from low pressure boilers. *Sergio Fushchlocher - Tecnintegral S.A., Colombia and Kuhnie Koop Kaush (KKK), Germany.*

Environmental handling of palm oil mill effluents and wastes. *Jesus Alberto Garcia Nunez - Cenipalma, Colombia*

Treatment of Palm Oil Mill effluents Biofil reactors. *Dr. Azni Idirs - University of Malaysia, Malaysia*

MODULE 2(b) : AGRONOMIC

Plant Breeding and Productivity of Oil Palm.
Dr. J. Meunier - CIRAD-CP, FRANCE

Clones : present status and market perspectives. *Dr. N. Rajanaidu and Dr. Jalani Sukiaimi - PORIM, Malaysia*

Impact, research and alternatives for Bud Rot Management. *Dr. Pedro Leon Gomez Cuervo - Cenipalma, Colombia*

Technologies available for Red Ring Control. *Hugo Calvache Guerrero - Cenipalma, Colombia*

Research and management of Stem Rots. *Dr. Ariffim Bin Darus - PORIM, Malaysia*

Incidence of Stem Rots in Colombia. *Luis Eduardo Nieto Paez - Cenipalma, Colombia*

Basal Stem Rot due to Ganoderma in oil palm plantations in Malaysia. *Dr. Gurmit Singh - United Plantations BHD, Malaysia.*

Integrated pest management. *Hugo Calvache Guerrero - Cenipalma, Colombia*

Cost-efficient plantation upkeep. *Carlos Matamoros - ASD, Costa Rica*

Optimal use of resources for plantation management. *Rafael Rey Picon - Plantation Advisor, Colombia*

Plantation Replanting Alternatives. *Dr. Mohamed Nezeeb Bin P. Alithambi - Sime Darbi Plantations, Malaysia*

Harvest Mechanization Alternatives. *Dr. Ahmad Hitam - PORIM, Malaysia.*

Colombia - Short Notes On FEDEPALMA Conference And Visit

Colombia has 120000 ha of oil palm producing about 350000 tonnes of palm oil. Although it has large areas of land suitable for oil palm cultivation, expansion of plantations have been hampered by a number of problems:

- Diseases - Lethal Spear Rot or Bud Rot is the most serious disease or epidemic of mature oil palm in S. America and is particularly bad in Colombia. The disease starts off as decay of the spear accompanied by bud rot with frond yellowing progressing from the younger leaves. Although some predisposing factors have been suggested no pathogen or vector has been identified. The only means of control appears to be plant resistance conferred by OxG F1 hybrids, which unfortunately are low yielding due to infertility. This explains the keen interest in further developing the OxG hybrids in S.America.

  Fusarium Wilt and Ganoderma Basal Stem Rot are also important diseases in Colombia. The former was alleged to be introduced from W. Africa by seed importation.

  Ganoderma appeared to be transmitted from coconut and native wild palms found on the former cattle ranches now commonly converted to oil palm plantations.
- Political insecurity - Anti-government guerrillas are turning from the illicit drug trade to kidnapping and robbing plantation owners to fund their operations.
- High labour cost - Daily wage averages US$11-15 although nature labour cost may be US$3-4 in some remote areas.
- Drought - Although annual rainfall averages 2500 there is a distinct dry season from December to March with water deficits averaging 330mm. With irrigation yields can reach 30 t/ha otherwise the yields may be as low as 14 t/ha. The need for irrigation increases cost of production.
- Price noncompetitiveness of palm oil - Palm oil competes for the same market e.g. Mexico as soybean oil form Brazil. The price of soybean oil depends on the meal prices as oil is the byproduct. In time of high meal prices the cost of soybean oil is very low or even free.

Most oil palm plantations in Colombia are so-called smallholdings from 500 to 2000 ha. Many are ex ranches. In some larger holdings the milling and refining are also integrated.

Earlier planting materials were of Malaysian and W. African origins. Presently the competing seed suppliers are ASD of Costa Rica, Dami of PNG and Hacienda Las Flores of Colombia.

Replantings are underway particularly of old dura plantings. Underplanting is a common practice. This may also lead to subsequent infestation by the Stegasus beetle which has many similiarities with our rhinoceros beetle.

FEDEPALMA is their equivalent of ISP and has been organising biannual international conferences.

VISIT TO HACIENDA LAS FLORES, COLOMBIA

INTRODUCTION

Las Flores is a 1500 ha oil palm plantation near Vieldupar, village of Caesar in the Amozonas district of Colombia not too far from the border between Venezuela and Colombia. It is about an hours flight from Baranquilla.

The property, is owned by Dr. Murgas of Murgas & Lowe. The property is interesting as the estate is into seed production, FFB production and milling and refining. The refinery produces a RBD cooking oil "Oleofler" for the local market. The estate has also planted about 250 acres of mangoes half of which are already in production and marketed mainly as table fruit within Colombia.

Rainfall is about 2000 mm with a distinct 3-5 month dry season. Palm growth is slow and palms short for age with less dense glossy yellowish, foliage and thinner leaflets. Estate has difficulty eradicating the widespread Napier grass in the inter-rows, remnants of previous ranching. Estate is planted mainly with Dami materials of the 1970s but unlike at Dami and Bah Lias there are no Mg deficiency symptoms.

As rainfall has been falling, and with generous government encouraged bank credits, the estate is now trying out irrigation. Yields are expected to increase from the current 15-18 tons ha to about 30 tonnes for ha and it is estimated that the additional expenditure will be recovered within 4-5 years of bearing.

Presently a newly planted 120 ha with Dami Progenies is being irrigated using sprinklers and burried (18") PVC piping. Investment is high at about RM 6500 per ha. First year yields are estimated at 15 ton ha reaching a maximum of 35 tons ha. An important comment was that with decreasing rainfall and extended dry season yield fluctuated even more severely.

The estate also operates a 40 tonne hour oil mill and milling technology is similar to elsewhere. Oil and kernels are piped to their refinery, the former for bottling as cooking oils (1,2 litre bottles and 5 l tins). An old system of separating olein and stearin is used. Kernels are broken and crushed for kernel oil and meal.

Dr. Murgas will be developing a second oil palm plantation (El Carmen) near Las Flores.

SEED PRODUCTION

Las Flores have been distributing Dami DxP seeds in Central and South America since the 1970s. To save on freight, and possible for other reasons, Dami and Las Flores planted a 1440 palms dura seed garden in 1985 (Codazzi) with duras from Dami, OPRS of PNG. Since 1994 they have started producing DxP seeds (from 210 selected mother palms) using Dami (AVROS) pollen.

SEED GARDENS

First Seed Garden

The first seed garden, of 15 dura progenies, was planted as a randomized block design of 5 replicates, 16 palm plots at a density of 143 palm/hectare, in June, 1985. Ten of the progenies are also planted in Dami's third seed garden - trial 224.

Yield recording ended in 1992 after 5 years of yield records had been collected. The data sent to Dami for analysis and selection. At present the harvesting of the first seed garden is the responsibility of the plantation rather than research. Both the centre of each plot is labelled and each palm is clearly labelled with blue metal labels giving the progeny, replicate and palm number.

At present there is no 'mid/inspection' path running down the centre of the garden - this means it is necessary to negotiate frond piles when walking the length of the garden. It will ease the life of the pollinator if he can walk through the garden without being impeded. It is suggested that at least one path is made.

Unifield clones were also planted in the trial which have been found to be abnormal. Since no fruit is produced these understandably have been neglected.

A very low incidence of frond stunting, as a result of nematode, and damage by Gargafia (leaf sucker) was observed.

Second Seed Garden

The second seed garden, 4 dura progenies planted as a randomized block design of 5 replicates of 16 palm plots at a density of 143 palms/hectare in July/August, 1990. The seed garden was planted in July/August 1990 and is presently under recording.

BUNCH ANALYSIS

The seed production unit has a basic bunch analysis lab. analysing about 20 bunches/day with an eventual objective of 40 per day. All the bunches are from the seed garden.

VISIT TO ASD COSTA RICA

GENERAL

Costa Rica has about 60 000 ha of oil palms, all on the Pacific Coast mainly in the Golfito area and almost all on ex banana land. The Atlantic coast has severe spear rot and other, unidentified disease problems and early plantations were quickly decimated. On the Pacific Coast it replaces banana where banana has been abandoned due to slow deterioration of soils despite manuring. On the Pacific Coast there is still some amount of Marchitez and spear rot but the most prevalent disease is Red Ring disease. Bagworms, Rhyneopharum palmarum and Metasius, the latter two vectors of the nematode causing Red Ring.

VISIT to ASD

1. The ASD is a subsidiary of the multinational banana company which is known as Chiquita Brands International (United Fruit Company of USA). It owns nearly 50,000 ha of oil palm plantation in Central America.

2. ASD produces 12 million seeds/year and markets them in Indonesia, India, Thailand, Myanmar etc.

3. ASD obained Deli duras from Guthrie, Harrisons, Socfin, MARDI and DAMI through exchange of Elaeis oleifera collected by Dr. Richardson. In a similar fashion, it also gathered AVROS, URT, Ekona, Yangambi, La Me, Nifor teneras from Harrisons, MARDI, DAMI Guthrie, Unilever, IRHO, Socfin, Ghana and NIFOR.

4. ASD produce 5 types of DxP seeds:

   a) Deli AVROS
   b) Deli Ekona
   c) Deli Ghana (Calabar)
   d) Kigoma x AVROS (for high altitude or cold areas)
      collected from about 800 m above sea level (not progeny tested)
   d) Deli x La Me

5. ASD has a major programme on compact palms where guineensis is continuously being backcrossed to interspecific hybrids.

6. ASD tissue culture effort is tailored to clone compact palms of backcross programme. Clones of duras and pisiferas have been field planted.

7. The seed production facilities are well organised with some innovative gadgets.

8. In terms of pests and diseases, these was no Fusarium wilt, Ganoderma, Cercospora and lethal spear or bud rot in ASD plantations. Only problem was red ring disease caused by a nematode borne by the Rhincoporus beetle vector. ASD has developed an aggregation pheromone to control beetle population.

Field Visit

The field visits were mainly to look at the compact palms (BC1 and BC2). A plot of BC1 next to an AVROS plot was visited and the lower height of the former obvious. It is believed that 4 loci control the compactness traits.

BC2 at 4 years were visited on the next day and again the height and compactness were obvious. Bunch and fruit conformation however, still looked poor though yields apparently good. One remarkable feature in BC2 was the blind end of some fronds, a characteristic also of the Dumpy E206.

BC3 (DxP) is presently in the nursery and it is estimated that the full potential of the compact will only be known by 1998.

BUNCH ANALYSIS LABORATORY

With a total of 13 workers the lab processes about 60 - 70 bunches per day. Bunches are harvested by three specialised bunch to at least three loose fruits.

Bunches are weighed and chopped and kept overnight and loosened/separated with knife. Unfertilized white fruit are separated. Only a minimum of 100g fruit sample is used for oil and mesocarp determination. For F/B a 5 kilo sample is used. All sampling is done by the 3 box method, of successive quartering.

Mesocarp is dried at 105 C for 36 hours and nuts at 100 C for 2 hours. Oil is extracted using 8 changes x 8 hours each cold petrol method.

POLLEN PROCESSING

Male inflorescences bagged with good quality canvas bag with sleeves are harvested and sun dried for 4 hours and the pollen beaten into the sleeve. The pollen and male flowers are transferred (using glove boxes) into a sieve and dried over silica gel for 48 hours. Pollen is then sieved and transferred into small plastic ampoules which are then placed in a bottle and vacuum sealed. Bottles are stored at -20 C and the pollen is said to keep for a year. When used pollen is mixed with talcum at 1:4.

SEED PROCESSING

200-300 pollinated bunches are harvested each week. Bunches are moved on rollers to a chopping cage and spikelets retted for 3-5 days. Spikelets are then placed in a revolving drum type depericarper that is run for about 5 minutes, the loose fruits partially depericarped are removed and depericarped for a further 5 minutes. This method is said to be superior to conventional hexagon cage depericarpers.

Seeds are put to germination in black polybags in cupboards and germinated seeds sorted out weekly from after the first week for about 5 weeks. ASD get a germination of up to about 90%.

TISSUE CULTURE

Oil palm tissue culture in ASD commenced from around 1989 and the laboratory is now run by Dr. Nidya Guzman with 3 staff. Prior to the lab. ASD received some clonal materials from IRHO.

The laboratory is a small renovated old building about 30' x 80' and consists of all the usual preparation and culture rooms.

A small weaning nursery is attached to the lab. and there were about 200 ramets at time of visit. Establishment was satisfactory but could be improved and self pruning in a number of seedlings were noted.

The lab. uses mainly young inflorescences (male or female) from leaves 9-12. Presently they sample about 1 palm per week with emphasis on palms from their Compact Palm breeding programme. Previously and now they also sample and clone pisiferas. Todate they have sampled 38 pisiferas, six of which are at embryogenesis and two in the nursery. They also intend to clone duras. Oldest tissue cultured plants are about 4 years old and no abnormalities have been observed but numbers are too few to tell.

The methodology uses high levels of hormones and charcoal for callusing which generally occurs after 20-40 weeks in culture. Frequency of callusing is generally low and especially so in some genotypes. The Ekona populations was observed to be very amenable to culturing.

Subculturing is done at approximately 8-10 weeks intervals. Liquid media without hormones is used for shoot development. Individual shoots are then retransferred into solid media and transferred again about a week later to solid media for root development.

Cognisant of the abnormality problem, they are limiting production to 20 ramets per clone but face the problem of variable embryogenesis. One compact backcross, for example, has given many ramets.

VISIT TO CATIE (16TH June 1995)

CATIE (Centro Agronomics Tropical De Investigacion Y Ensenanza) is a tropical agronomy research and education centre at Turrialba, 70 km from San Jose the capital of Costa Rica.

Previously mainly funded by developed nations it was one in a chain sprinkled in various parts of the world. It is now mainly funded by IICA (Inter American Institute for Cooperation on Agriculture) and the nation of Central and South America down to Venezuela. However, funding appears inadequate compared to the past and fields are suffering some neglect.

Besides research, where there are about 70 scientists, CATIE also offers graduate programs and many South American agriculturists have been trained there. The station has about 2000 acres of land devoted to collection of tropical crops, especially those of importance to Central and South America. The Bactris (peach palm) and coffee collections are especially in pressive and were visited. There are also a 50 ha cocoa clone collection with 750 accessions established, with the coffee collection, since 1942. The collection is among the largest in C. America and research is mainly for disease resistance.

Besides, administrative blocks, student hostels and laboratories CATIE has a very good library, reputedly the world's leading for tropical agriculture. During the, one afternoon visit, we also had the opportunity of seeing mass suspension tissue culture developed by CIRAD of France and being tried there. This method reduces oscidation problem.

SOCIETY NEWS

Recent Publication :

The proceedings of the September 1993 ISOPB Workshop in Kuala Lumpur on "Recent Developments in Oil Palm Tissue Culture and Biotechnology" have been published. Readers may obtain copies from the Secretary or from PORIM. Price, for those who did not attend the Workshop, is US 20.00 per copy.

Forthcoming Event :

The Society will hold an International Workshop on "Oil to Bunch and Its Implications on the Oil Palm Industry" on 27 - 28th September, 1996. These dates fall in the week of the PORIM International Palm Oil Conference and both will be held in Kuala Lumpur.

Contribution to Newsletter :

The absence of the above is the bane of many a newsletter both past and present. ISOPB is a very small but active society. Every contribution counts.