

DOPR News

DIRECTORATE OF OIL PALM RESEARCH

(Indian Council of Agricultural Research)

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From the Director's Desk

Dear Readers,

The demand for vegetable oil is growing at a rapid pace in India due to increased per capita consumption and growing population. In 2011-12, the domestic production of vegetable oil in India was 9.65 million tonnes. A huge quantity of 10.20 million tonnes was to be imported at a cost of about Rs. 40,000 crores to bridge the gap between the demand and supply of vegetable oils.

Oil palm, a perennial oil yielding crop with average yield of five tonnes of oil/ha/year is the best option for making a quantum jump in the vegetable oil production in the country. Hence, it was added as one of the crops under Technology Mission on Oilseeds in 1986. During the initial years, oil palm, as a corporate planting under forest land could not give desired results due to poor management and further forest laws did not permit conversion of forest area to cultivable land. Hence, no further oil palm development took place during the nineties. Concurrently, various committees from 1985 to 2006 have identified potential area of 1.03 million ha for oil palm cultivation under irrigated conditions in 14 states of the country.

The District Rural Development Agency plantations (1988), oil palm demonstration project of 1000 ha each in three states (1989-90) and massive Oil Palm Development Project (1990-91) have made slow progress in oil palm area expansion in 11 states over three decades. An area of 2.06 lakh ha under oil palm has come under oil palm cultivation, of which Andhra Pradesh alone possesses 1,27,160 ha. Twenty three processing units have been established in the country with a total processing capacity of 266 tonnes/hr, of which Andhra Pradesh alone has 13 processing units. The existing six indigenous seed gardens could produce 2 to 3 million tenera seeds per year and at present, the bulk of the seeds/sprouts are imported to meet the additional requirements. There were two instances of price fall (1999-2000 and 2008-09) that played an important role in slowing down the Oil Palm Development Programme. In the recent months, price policy and incentives provided by the Ministry of Agriculture, Government of India under Rashtriya Krishi Vikas Yojana Project gave strength to hasten the oil palm development in the country.

Directorate of Oil Palm Research, with the help of a Committee with Dr. P.Rethinam as Chairman, has

identified additional potential areas in the existing Oil Palm Development Programme States and other states. A total potential area of 1.93 million ha in 18 states has been identified for growing oil palm. This area could further be enhanced, if critical assessment is made for ground water potential and soil type at micro-level through satellite surveys. The committee identified an area of 3.25 lakh ha in new states like Arunachal Pradesh, Bihar, Meghalaya and Nagaland. The Committee still feels that the potential for growing oil palm in North Eastern Region has not been fully exploited and there is still scope for additional area to be brought under oil palm cultivation. An additional potential area of 5.88 lakh ha has been identified in the OPDP States like Andhra Pradesh, Assam, Chattishgarh, Karnataka, Kerala, Maharashtra, Mizoram, Orissa, Tamil Nadu, Tripura and West Bengal. The States like Assam, Maharashtra, Tripura, and West Bengal identified as potential states by DAC Committee, 1988 were deleted in the recent report of DAC Committee in 2006. These areas were again brought under the category of "potential areas" by the present Committee, after discussions with officers of the respective State Government.

A planting schedule for XII and XIII Five Year Plan has been suggested in the report to cover 7,55,700 ha, which would help in achieving a target of 9.62 lakh ha area under oil palm cultivation by 2021-22.

The road map for increasing the domestic production capabilities has been suggested in the report. Six more seed gardens of 20 ha each is to be established as suggested by earlier Committee and could involve public - private partnership. Planting of *duras* and *pisiferas* (TxT) from advanced breeding cycles of indigenous sources could be done. However, concurrently additional promising *duras* and *pisiferas* may be imported from Indonesia, Ivory Coast, Nigeria, Malaysia etc. The further requirement for tenera sprouts need to be imported from potential countries.

Constraints hindering the effective implementation of Oil palm Development Programme in the country are discussed in the Report and policy initiatives to overcome these constraints are also listed.

Implementation of the recommendations given in the report would help us in marching towards self sufficiency in vegetable oil production in the country.

S. ARULRAJ
DIRECTOR

Sectoral News

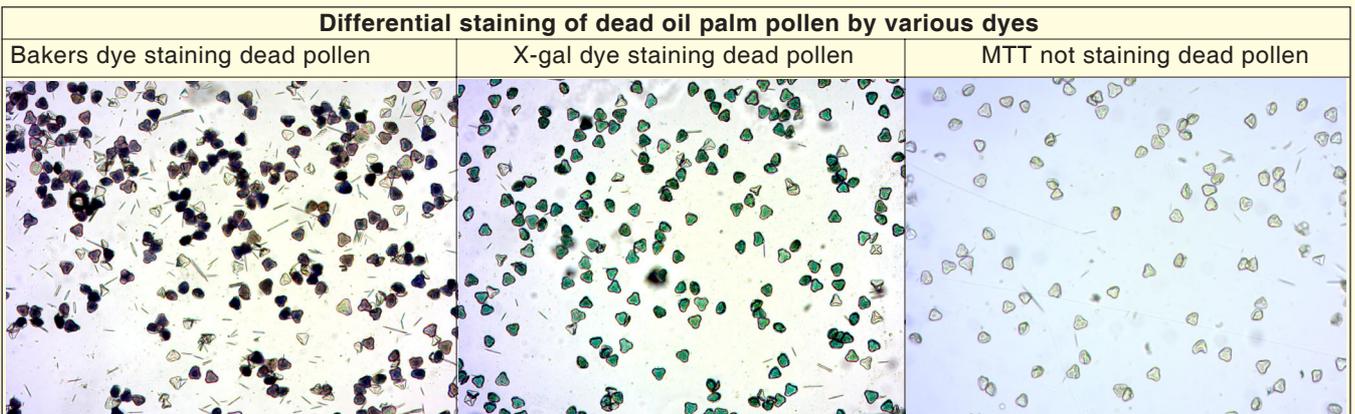
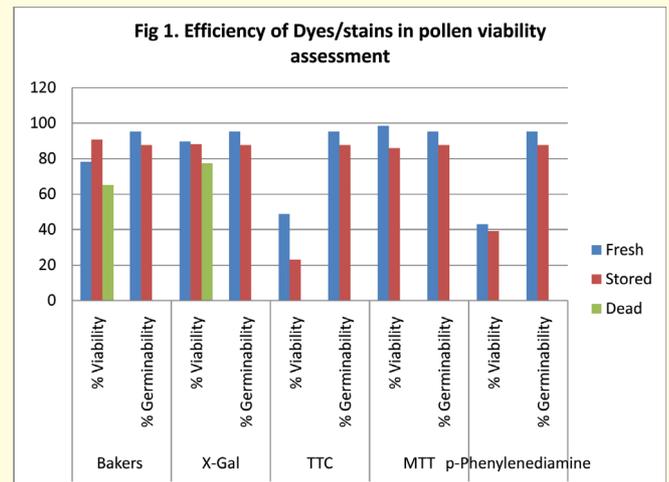
Oil palm farmers are harvesting an average fresh fruit bunch (FFB) yield of 20 tonnes/ha/yr by adopting the recommended management practices. Few farmers recorded an average yield of more than 40 tonnes FFB/ha/year (mean of three years). It has been observed that the farmers could obtain high yields by adopting innovative practices *viz.*, maintenance of optimum moisture in the field through controlled irrigation, providing

drainage channels for draining the excess water during rainy season, adopting soil and water conservation practices, mulching of palm basins with cut fronds obtained during FFB harvesting, split application of fertilizers, yearly application of well decomposed organic manure in sufficient quantity to each palm. Keeping in view of the above, oil palm growers are advised to adopt recommended and innovative practices to get sustainable and high yields.

RESEARCH ACHIEVEMENTS / NEW FINDINGS

Methodology standardized for testing oil palm pollen quality

An effective method for determining the pollen quality of oil palm in terms of viability and germinability was standardized. Five established dyes were screened to assess the oil palm pollen viability and eight different media were tested for *in vitro* germination. Among the five dyes, 2, 5-Diphenyl Tetrazolium Bromide was the best for testing pollen viability as it was highly correlated with *in vitro* germination and did not stain the dead or aborted pollen. It is also recommended to use dead pollen, to check the potentiality of the dye before testing pollen viability in oil palm. The media consisting of Sucrose; H₃BO₃ and PEG-10,000 produced maximum germination with pollen tube length of 317.88 µm and was highly correlated with germination.



Changes in photosynthetic activity in oil palm hybrids under water deficit at seedling stage

The leaf water potential, gas-exchange parameters and chlorophyll fluorescence were evaluated in five common oil palm tenera hybrids 913X1988, 1425X2277, 748X1988, 7418X1988, and 690X1988 to identify hybrids which can cope up water deficit conditions and understand possible differences among hybrids in relation to the physiological mechanisms triggered by water deficit. Findings indicated that, hybrids 913X1988, 1425X2277, and 7418X1988 maintained higher leaf water potentials than the other hybrids. Hybrids 7418X1988 and 1425X2277 recorded lower stomatal conductance after water deficit, which resulted in higher intrinsic water-use efficiency. The excess light energy produced due to decreased photosynthesis in 7418X1988 and 690X1988 hybrids under water deficit was dissipated as heat by higher non-photochemical

quenching. The maximum efficiency of photosystem II was not affected, even after withholding water for 24 days, suggesting an increased efficiency of photo-protection mechanisms in all these oil palm hybrids.

Intercropping in adult oil palm plantations

The performance of cut foliage plants *i.e.*, Ti plant (*Cordyline terminalis*) and fish tail fern (*Nephrolepis falcate forma*) grown as inter crops in mature oil palm garden has been found satisfactory.

Research articles

- ◆ Pinnamaneni Rajasekhar and Potineni Kalidas. 2012. *Beauveria bassiana*-a novel biocontrol agent against leaf webworms of oil palm. *Current Biotica* 6(3): 334-341
- ◆ Shukla, A. K., Behera, S. K., Shivay, Y. S., Singh, Pooja and Singh, A. K. 2012.

Micronutrients and field crop production in India: A review. *Indian J. Agronomy* 57: 123-130

- ◆ Suresh, K., Nagamani, C., Kantha, D.L., Kumar, M. K. 2012. Changes in photosynthetic activity in five common hybrids of oil palm (*Elaeis guineensis* Jacq.) seedlings under water deficit. *Photosynthetica* 50(4): 549-556
- ◆ Suresh, K., Kiran Kumar. M., Lakshmi Kantha, D., Prasanna Lakshmi, R and Sunil Kumar, K. 2012. Variations in photosynthetic parameters and leaf water potential in oil palm grown under two different moisture regimes. *Indian J. Plant Physiol.* 17(3&4): 233-240

Technical publications

Rethinam, P., Arulraj, S and Narsimha Rao, B. 2012. Assessment of additional potential areas for oil palm cultivation in India. Directorate of Oil Palm Research, Pedavegi, West Godavari District, Andhra Pradesh.

Participation in symposia / seminars / workshops / conferences / meetings etc.

- Dr. S. Arulraj, Director attended:
 - ✓ Plantation Crops Symposium - PLACROSYM-XX held at Coimbatore during December 12-15, 2012.
 - ✓ Meeting convened by Joint Secretary, Department of Agriculture & Cooperation, Government of India to review the status of implementation of Oil Palm Development Programme in Andhra Pradesh, Karnataka and Tamil Nadu States on November 6, 2012.
 - ✓ State Level Sanctioning Committee meeting on ISOPOM chaired by Agricultural Production Commissioner and Secretary to Government of Tamil Nadu on December 12, 2012.
- Dr. P. Kalidas participated in the International Conference on Plant Health Management held at Hyderabad during November 28-30, 2012 and presented a paper entitled "Impact of biopesticides on the decomposition of oil palm biowaste."
- Dr. P. Murugesan, Dr. M. V. Prasad, Dr. M. Jayanthi, Dr. K. Sunil Kumar and Dr. Goutam Mandal participated in the Plantation Crops Symposium - PLACROSYM-XX held at Coimbatore during December 12-15, 2012.
- Dr. K. Suresh, Principal Scientist attended:
 - ✓ National Seminar on "Innovative Technologies for Conservation and Sustainable Utilization of Island

Biodiversity" at CARI, Port Blair during December 20-22, 2012 and presented the status paper on "Scope for oil palm development in Andaman and Nicobar islands".

- ✓ Meeting of the RFD Nodal Officers of Responsibility of Sub-Centres (RSCs) i.e. Horticulture Institutes held on November 23, 2012 at ICAR, New Delhi.
- ✓ Sensitization meeting of Scientist-in-Charges of PME Cells held on December 7, 2012 at NDRI, Karnal.
- Dr. K. Ramachandrudu, Dr. Goutam Mandal and Dr. P. Naveen Kumar, Senior Scientists, participated in 5th Indian Horticulture Congress-2012 organized by Horticulture Society of India at PAU campus, Ludhiana during November 6-9, 2012.
- Dr. Sanjib Kumar Behera, Senior Scientist, presented the poster entitled "Assessing suitability of DTPA method for estimation of phyto-available zinc in acid soils of India" in the 8th International Symposium on "Plant-Soil Interaction at Low pH" held at University of Agricultural Sciences, Bangalore during October 18-22, 2012.
- Dr. L. Saravanan, Scientist, participated in International symposium on "Food security dilemma: Plant health and climate change issues", at BCKV, Kalyani, West Bengal during December 7-9, 2012.

Membership in committees / expert teams

Dr. B. Narsimha Rao, Principal Scientist nominated as Member IMC - Zonal Project Directorate, Zone V, Hyderabad.

Training courses attended

- Dr. B. Narsimha Rao, Principal Scientist attended "Management Development Programme on Leadership Development (A Pre-RMP Programme)" at NAARM, Hyderabad during October 8-19, 2012.
- Dr. Sanjib Kumar Behera, Senior Scientist attended training on "Analysis of Experimental Data using SAS" at NAARM, Hyderabad during November 2-8, 2012.

Deputation abroad

Dr. S. Arulraj, Director visited Malaysia as a member of Indian Delegation to explore the possibility for import of oil palm germplasm and planting material during October 11-16, 2012.

TRANSFER OF TECHNOLOGY

Officers trained: Organised two training programmes to 44 officers of State Department of Agriculture/Horticulture and Entrepreneurs belonging to different oil palm growing states. The details are as follows:

Training Programme	Date	Venue	No. of. Participants
Plant Protection in Oil Palm	October 17-19, 2012	Andhra Pradesh, Karnataka, Mizoram, Tamil Nadu	25
November 20-22, 2012	Nursery Management in Oil Palm	Andhra Pradesh, Odisha, Karnataka, Kerala, Tamil Nadu	19

Farmers trained: Organised four training programmes of one day duration on “Oil Palm Cultivation” to 147 farmers of Andhra Pradesh and Odisha at DOPR, Pedavegi and six training programmes to 114 farmers of Tamil Nadu at DOPR, RC, Palode. Details are as follows:

Date and venue	Farmers represented from	No. of. Participants
11.10.2012 DOPR, RC, Palode	Shencottai, Tamil Nadu	10
4.11.2012 DOPR, RC, Palode	Kadayanalur, Tamil Nadu	12
14.11.2012 DOPR, Pedavegi	Ganjam Dist., Odisha	23
16.11.2012 DOPR, Pedavegi	West Godavari Dist., A. P.	50
21.11.2012 DOPR, RC, Palode	Thirunelveli, Tamil Nadu	10
28.11.2012 DOPR, RC, Palode	Tenkashi, Tamil Nadu	14
29.11.2012 DOPR, RC, Palode	Tenkashi, Tamil Nadu	13
30.11.2012 DOPR, Pedavegi	West Godavari Dist., A. P.	50
4.12.2012 DOPR, RC, Palode	Thirunelveli, Tamil Nadu	55
7.12.2012 DOPR, Pedavegi	Ganjam Dist., Odisha	24
	Total	261

Extension activities

Radio talk

- Dr. B. Narsimha Rao, Principal Scientist gave a radio talk on “*Oil palm thotallo eruvula yajamanyam* (Telugu)” (Fertilizer management in oil palm), broadcasted by AIR, Vijayawada on November 7, 2012.
- Dr. K. Ramachandrudu, Senior Scientist gave a radio talk on “*Oil palm thotallo anthara pantala saagu* (Telugu)” (Inter cropping in oil palm gardens), broadcasted by AIR, Vijayawada on November 14, 2012.

Awareness campaigns

Dr. P. Kalidas, Principal Scientist delivered a talk on ‘oil palm’ to the farming community present at 12 different locations in East and West Godavari, Khammam, Krishna and Vizianagaram districts, using Webnar services organized by M/s Coromandel International Limited, Andhra Pradesh on December 17, 2012.

Dr. K. Ramachandrudu, Senior Scientist delivered a talk on “Cocoa as intercrop in coconut and oil palm gardens” during the Training programme on Cocoa held at Horticulture Farm, Vijayarai, Andhra Pradesh on October 16, 2012.

Exhibitions

Dr. K. Ramachandrudu, Senior Scientist participated in the exhibition organized during the 3rd International Agronomy Congress held at IARI, New Delhi during November 26-30, 2012.

Feasibility studies

Dr. R. K. Mathur, Dr. K. Ramachandrudu, Dr. K. Sunil Kumar, Dr. P. Naveen Kumar and Dr. Sanjib Kumar Behera submitted a feasibility report for establishment of oil palm seed garden at Mallavalli, Krishna district, Andhra Pradesh.

Establishment of new seed gardens

One new seed garden was established at Morampudi, East Godavari dt., of Andhra Pradesh under the guidance of a team of scientists from DOPR. The parental planting material was supplied by DOPR, Pedavegi.

CAMPUS NEWS

Institute Joint Staff Council meeting

The third meeting of 8th Institute Joint Staff Council of DOPR was held at DOPR, RC, Palode on October 30, 2012.

Hindi Day

“Hindi Chetanamaas” was celebrated at the Institute during 22-09-2012 to 19-10-2012. In this connection, several competitions were conducted to the staff members, viz., Essay writing, Translation, Noting and Drafting, Kavita paat, Translation and Sentence formation (for Skilled Support Staff), News reading etc. Prizes were distributed to the winners.

PERSONALIA

Promotions

Dr. K. Suresh, Senior Scientist, promoted to the post of Principal Scientist w.e.f. 01.02.2012.

Dr. K. Ramachandrudu, Scientist (SS), promoted to the post of Senior Scientist w.e.f. 17.07.2007.

Dr. K. Sunil Kumar, Scientist (SS), promoted to the post of Senior Scientist w.e.f. 02.12.2008.

Mrs. N. Sujatha Kumari, Technical Officer (T-6), promoted to the post of Technical Officer (T 7-8) w.e.f. 20.09.2008.

Mr. V. Suiil Duth, Technician (T-3), promoted to the post of Technician (T-4) w.e.f. 23.03.2012.

Mr. A. Papa Rao, Tractor Driver (T-2), promoted to the post of Tractor Driver (T-3) w.e.f. 13.09.2012.

Transfers

Sri. T.D.S. Prakash, AF&AO transferred on promotion to the post of FAO at CPCRI, Kasaragod, Kerala on 5.11.2012.

Retirements

Sri. V. G. Sasidharan, Technical Officer (T-5), DOPR, RC, Palode, retired on superannuation on 31.10.2012.

Sri. C. K. Devadathan, Technical Officer (T-5), DOPR, RC, Palode, retired on superannuation on 31.12.2012.

Resignation

Sri. H. Pavan Kumar, has resigned the post of Assistant at DOPR, Pedavegi w.e.f. 10-12-2012.

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