DOPR News

DIRECTORATE OF OIL PALM RESEARCH

(Indian Council of Agricultural Research)

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From the Director's Desk

Immediately after the recent Hudhud Cyclone devastation in Vishakapatnam and Vijayanagaram Districts of Andhra Pradesh, DOPR scientists visited cyclone affected areas to assess the damage caused to oil palm and other crops due to cyclone to suggest the possible remedial measures. Four types of damage were observed in oil palm – 1) Uprooting of trees; 2) Crown damage; 3) Slanting of palms and 4) Leaf shredding in young palms. Though the extent of damage to oil palm crop (area-wise) is somewhat less, very severe damage was observed in a few gardens. Based on our experience during super-cyclone during the late nineties, DOPR has already evolved a "Rejuvenation package" for cyclone affected palms. The management of cyclone affected oil palm trees involves lifting of fallen palms, pit digging and replanting, management of slanted palms and management of crown twisted/top damaged palms along with appropriate cultural practices for fertilizer application and plant protection measures.

It is to be mentioned here that, during May, 2014, the "Rejuvenation package" was successfully implemented in an 8.00 ha garden in West Godavari District where palms were completely uprooted by "swirling winds". My personal appreciations are due to the officers and management of M/s. Navabharat Agro Products Ltd. (the oil palm processing Unit operating in the affected area) and State Department of Horticulture as well as Scientists from Directorate of Oil Palm Research and Dr. YSR Horticultural University for taking swift action with the active participation of the farmers and ensured 100% revival of the affected palm trees.

Hence for the cyclone affected areas also, as Rejuvenation packages are to be implemented urgently on a war-footing, efforts were made to give wide publicity to the "Rejuvenation package" for cyclone affected palms. In addition to publicity through ICAR web site as well as DOPR web site, a Press Note on "Rejuvenation of oil palm trees affected by cyclone" was issued to local newspapers through the ANGRAU Research Station, Anakapalli as well as Commissionerate of Horticulture, Andhra Pradesh. DOPR has also proposed a "subsidy package" to the State Department of Horticulture for taking up the rejuvenation operations in the affected oil palm gardens.

S. Arulraj
Director

Sectoral News

The Second "National consultation Meeting on Oil Palm" was organized by DOPR on July 26, 2014 at Hyderabad to discuss the issues related to oil palm cultivation, processing, research and extension aspects and overall development of oil palm in the country. Representatives from all the stakeholders of oil palm industry *viz.*, farmers, processors, policy planners, researchers and department officials of 14 oil palm growing states participated in the meeting. The meeting was chaired by Dr. N. K. Krishna Kumar, Deputy Director General (Hort. Sc.), ICAR and he emphasized that the oil palm sector could grow only, when all the stakeholders operate in a cordial atmosphere. As water is becoming a scarce resource, research on irrigation management could be conducted by an inter-disciplinary team of Engineering and Agronomy scientists to bring about significant changes in improving water use efficiency. Following the Inaugural Address, state-wise presentations were made on the status of oil palm sector in each State followed by response from different stake-holders on measures for improving the oil palm productivity in the different oil palm growing states.

Following recommendations have emerged during the National Consultation Meet.

- Oil palm could play a critical role in Indian National Economy in view of high oil yield potential as well as high demand for vegetable oils resulting in import of more than 50 per cent of domestic consumption requirements.
- Thrust shall be given for strengthening the Oil Palm Development Programme with higher area targets.
- The present area target of 25,000 ha per annum shall be enhanced to 1.00 lakh hectares and subsequently to 2.00 lakh hectares per annum to bridge the prevailing huge trade gap.
- Efforts should be made to increase the productivity of existing oil palm plantations with proper management and it should be possible to achieve the yield target (National average) of 15 tonnes FFB per ha. by the end of 12th Five Year Plan. Performance based incentives could be offered to farmers achieving better yields.
- Better management of young plantations shall be ensured so as to achieve 20 tonnes FFB yield per ha from 4th year onwards.
- Incentive pattern provided for oil palm development under National Mission on Oil seeds and Oil Palm (NMOOP) needs to be revised to cater to the emerging needs.
- Oil palm research should be strengthened for evolving hybrids with higher FFB yield, oil content, dwarfness and compactness.
- Possibility could be explored for enhancing net farm income through wider spacing in oil palm plantations to give better scope for accommodating remunerative inter-crops.
- Oil Palm Act shall be enacted in all the oil palm growing States of the Country.
- In mid-land and upland areas, more emphasis could be given for promotion of oil palm in areas with more than 900 mm rainfall or in command areas with canal irrigation for 3-8 months.
- In each State, oil palm could be promoted in high potential districts only, avoiding the districts with suboptimal conditions for oil palm cultivation.
- Terms and conditions for oil palm crop insurance should be formulated to ensure benefit to farmers.
- Oil palm entrepreneurs shall establish Development Departments for providing the required extension service to oil palm farmers.
- Harvesters' Bank is to be established by each entrepreneur – FFB harvest could be undertaken by the processor and the cost could be deducted from FFB price to ensure harvest at correct maturity level.
- 25 per cent duty could be imposed on the import of Crude Palm Oil and part of the income could be ploughed back for supply of oil through PDS and part of income could be used for the motivation of oil palm farmers and processors.
- Meetings of National Level Steering Committee and State Level Project Monitoring Committees are to be held regularly to review the progress of NMOOP.
- In all the States (other than Andhra Pradesh), where oil palm sector is in early growing phase, FFB rate, as fixed by Government of Andhra Pradesh, could form the basic minimum price for the FFB to be procured in these States. The resultant gap in price structure could be shared by State Government and Processors.
- National Level Consultation Meeting of all stakeholders in oil palm sector could be held once in two years.

Launching of National Mission on Oilseeds and Oil Palm (NMOOP): Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India launched the 'National Mission on Oilseeds and Oil Palm (NMOOP)' to boost the production of vegetable oils sourced from oilseeds, oil palm and tree borne oilseeds. Cost of the interventions proposed under the Mission will be in the ratio of 75:25 between the Central and the State Governments, except in case of few ongoing interventions. The Mission is proposed to be implemented through three Mini Missions (MM). Mission interventions under MM-II for oil palm includes Area expansion; Inputs for planting material; Maintenance cost of new plantations for three years; Production inputs for drip irrigation, bore well/water harvesting structure/ponds; Establishment of new oil palm seed gardens; Inputs for intercropping in oil palm; Construction of vermi-compost units in oil palm plantations; Support for machinery and tools; Special component for NE/Hilly States/LW areas/ regions; Various transfer of technology programmes for farmers, extension officials/workers/input dealers and Demonstrations on oil palm cultivation at farmers field. For detailed information log on to: http//agricoop.nic.in.

RESEARCH ACHIEVEMENTS

Exploration and collection of elite materials from exotic oil palm plantations in India

Oil palm germplasm collections were made from Tamil Nadu (high yielding tenera characterized with better fruit to bunch (65.86 %); mesocarp to fruit (66 %) and oil to dry mesocarp percent (82 %); high yielding oil palm plantations from Karnataka (TxT cross) and high yielding plantation at Belgaum, Karnataka (open pollinated tenera characterised by high FFB yield, higher fruit to bunch (71.39 %) and mesocarp to fruit (67.40 %)).

Cryopreservation of oil palm pollen

An experiment was carried out with the objective of standardizing the cryopreservation protocol for oil palm pollen. Pollen was collected from inflorescences of dwarf tenera (P-221) and the processed pollen (in 5 ml cryovials) was immersed in liquid nitrogen for 1 hour in a 10 litre cryocan and thawed outside as per standard procedure. The viability and germination estimated for fresh pollen before cryo treatment as

well as after cryo exposure (at -196^{0}C in liquid nitrogen) were found to be 79 and 74 & 87 and 84 per cent respectively and showed that oil palm pollen quality was satisfactory after cryo treatment.

Commercialization of oil palm tissue culture protocol

The oil palm tissue culture technology developed at DOPR was licensed to M/s. Sheel Biotech Private Limited, Manesar, Haryana for further refinement and scaling up through M/s. AgrInnovate India Limited, New Delhi. A signing ceremony of license agreement was held at NASC complex, New Delhi in the presence of Director General, ICAR on July 22, 2014. Dr. P. Naveen Kumar and Dr. G. Ravichandran, Senior Scientists from DOPR participated in the programme.

Patent application filed

Patent application (application no. 3937/CHE/2014) has been filed for the invention entitled 'Design and development of oil palm ablation tool' at Patent Office, Chennai

TRANSFER OF TECHNOLOGY

Officers trained: Three training programmes were organised to 32 officers of State Department of Agriculture/Horticulture and Entrepreneurs belonging to different oil palm growing states.

S. No.	Training Programme	Date	Participants represented from the states	No. of Participants
1	Oil palm Production Technology	August 19-26, 2014	Karnataka, Tamil Nadu, Andhra Pradesh, Odisha, Gujarat, Punjab, Maharashtra and Kerala.	18
2	Oil palm Hybrid Seed Production	September 18-19, 2014	Kerala	9
3	Oil palm Hybrid Seed Production	September 22-24, 2014	Tamil Nadu, Mizoram and Kerala.	5

Farmers trained: One day on-farm training on "Oil palm cultivation" was organised at P. Gollagudem, Khammam Dist., Telangana on August 22, 2014. Dr. M V Prasad and Dr. P. Naveen Kumar scientists from DOPR explained the recommended practices of oil palm cultivation and replied queries raised by oil palm growers. Literature on oil palm cultivation was provided to the participants.

About 120 participants consisting of oil palm growers, officers of State Department of Horticulture, officers and field extension staff of A. P. Oil Fed, scientific staff of Agricultural College, Aswaraopet participated in the programme.

Farmers' Field School: Field school on "Irrigation management in oil palm" was organised on August 30, 2014 at Telikicherla, West Godavari Dist. Andhra Pradesh, where in a group of 24 oil palm growers participated. Group approach techniques were adopted to disseminate the technology.

Training courses organized

Orientation-cum-training was conducted for the scientific, technical and administrative staff of DOPR regarding implementation of MIS-FMS System in the day-to-day official work under data digitization program of ICAR at DOPR, Pedavegi on August 18, 2014.

Orientation cum training on 'Oil palm tissue culture' was organized for the staff of M/s Bejo Sheetal Bio-Science Foundation, Jalna at DOPR, Pedavegi on August 5, 2014.

Extension activities

Dr. S. Arulraj, Director attended Interaction Meetings with farmers at Tiruchirapalli and Thanjavur, Tamil Nadu during September, 2014.

Dr. B.M.C. Reddy, Vice Chancellore, Dr. YSR Hotricultural University and Dr. S. Arulraj, Director, DOPR visited and interacted with farmers of Makkinavaarigudem on 18-09-2014.

Dr. K. Manorama delivered a talk on "Mitigation measures for oil palm cultivation under deficit and erratic rainfall conditions" telecasted by ETV in Annadata programme on July 19, 2014.

Feasibility study conducted

A team of scientists from DOPR, Pedavegi - Drs. R. K. Mathur, G. Ravichandran, P. Naveen Kumar, K. Ramachandrudu and L. Saravanan visited the Horticultural Farm, Muthanaveedu, West Godavari Dist, Andhra Pradesh to assess its suitability for establishment of new oil palm seed garden and feasibility report submitted.

Research publications

Shetty, P.K., Manorama, K., Murugan, M. and Hiremath, M.B. 2014. Innovations that shaped Indian Agriculture-then and now. *Ind. J. Sci. and Tech.* 7(8):1176–1182.

Kalidas, P., Chander Rao, S. and Prabhakar Rao, K.J. 2014. Oil palm cultivation in India: past, present and future scenario. *J. Oilseeds Res.* 31(1): 1-12.

Technical publications

Manorama, K., Behera, S. K., Suresh, K., Ramachandrudu, K., Rao, B.N. and Prasad, M.V. 2014. Precise method to collect soil samples in oil palm plantations, E publication at http://www.krishisewa.com/cms/articles/soil-fertility/408-soil-sample-in-palm.html.

Murugesan, P. and Sunilkumar, K. 2014. Enriching oil palm industry through American Oil palm. Indian Horticulture, 59 (3):7-9

Sunilkumar, K., Pushpalatha, P. B. and Prasannakumari Amma, S. 2014. Effect of pectinase and pod storage on small scale fermentation of cocoa (Theobroma cacao L.) in India, in the Book of Abstracts, International Conference on Biosciences: State -of- the- art advancements, organized by the Society for Educational and Scientific Research, pp 95.

Prasad, M. V., Manorama, K., Behera, S. K. 2014. Mitigation measures in oil palm cultivation under delayed or deficit monsoon conditions. E Publication available at http:// www.krishisewa.com/cms/articles/production-technology/451-oil-palm.html

Participation in Symposia/ Seminar/Workshop/ Conferences/Meetings

Dr. S. Arulraj, Director attended the Executive Committee Meeting of National Mission on Oilseeds and Oil Palm(NMOOP) - chaired by Hon'ble Agriculture Minister, Government of India at New Delhi on September 10, 2014.

Dr. S. Arulraj, Director, Dr. R. K. Mathur, Dr. B. N. Rao and Dr. P. Murugesan, Principal Scientists participated in Annual Group Meeting of AICRP on Palms held at DOR Hyderabad during July 25-29, 2014.

Dr. P. Murugesan participated in SLCARP International Agricultural Research Symposium 2014 at Colombo, Sri Lanka during August 11-12, 2014 and presented research paper entitled 'Effect of Mechanical Seed Scarification on Germination and Seedling Growth of Inter Specific Hybrids of Wild Oil Palm (Elaeis oleifera, HBK.)'

Dr. K. Sunilkumar attended the International Conference on Biosciences: State-of-the-art advancements, organised by the Society for Educational and Scientific Research during September 11-12, 2004 at Kumarakom, Kerala.

Dr. S. K. Behera and Dr. K. Manorama attended the launching workshop of ICAR National network on "Micronutrient management in horticultural crops for enhancing yield and quality" held at IIHR, Bengaluru on September 10, 2014.

Dr. P. Murugesan participated in the XXX Germplasm Registration Committee meeting at NBPGR, New Delhi on September 4, 2014

Distinguished visitors

Dr. C. Lalzarliana, Director of Agriculture and Dr. R.K. Nithanga, Deputy Director (oil palm), Govt. of Mizoram visited DOPR, RC, Palode on 28.07.2014 for having first hand information on oil palm seed garden.

Shri. L. R. Ralte, Minister of State, Environment and forest, Soil and water conservation, Labour and employment and Co-operation, Govt. of Mizoram visited DOPR, RC, Palode on 29.09.2014 to interact about the oil palm cultivation in general as well as the suitability of oil palm in Mizoram.

New projects sanctioned

Under NMOOP (Dept of Agriculture and Cooperation, Ministry of Agriculture, Govt of India), eight research projects were sanctioned for implementation during 2014-15.

- ICAR National network on "Micronutrient management in horticultural crops for enhancing yield and quality" has been sanctioned to DOPR, Pedavegi as a cooperating centre.
- ICAR Consortium Research Platform on "Borers" in Network mode has been sanctioned to DOPR, Pedavegi as a cooperating centre.

Transfers / New appointments

Mr. Asif Mohammed joined as Assistant Finance & Accounts Officer at DOPR, Pedavegi on 08.08.2014.

Dr. K. L. Mary Rani, Scientist promoted to the post of Senior Scientist w.e.f.28.09.2014.

Campus news

Rajbhasha, Hindi Pakhwara was celebrated at DOPR, Pedavegi during September 14-29, 2014. Various competitions related to Hindi language were conducted and the winners were awarded prizes on September 29, 2014.

The District Government Hospital, Eluru has organised a Blood Donation Camp at DOPR, Pedavegi on September 19, 2014 and several DOPR employees have voluntarily donated blood on this occasion.

Edited by :
Dr. M. V. Prasad, Dr. P. Naveen Kumar,
Dr. K. Sunil Kumar and Mrs. A. Bhanusri
Published by :
Dr. S. Arulraj
Director, Directorate of Oil Palm Research,
Pedavegi - 534 450, West Godavari District., A. P.
Phone: 08812 259532/259524; Fax: 08812 259531.
e-mail:dopr2009@gmail.com ; Web site: http://dopr.gov.in
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