REPORT
ON

THE FIELD VISIT CUM MEETING
TO
DISCUSS
THE STRATEGY TO BE ADOPTED TO PREVENT AND CONTAIN THE INSECT GALL PROBLEM IN EUCALYPTUS, CAUSED BY *LEPTOCYBE INVASA* FISHER & LA SALLE

held on

17th April 2007
at Chennai

Participants in the Eucalyptus plantation at Satyavedu, Andhra Pradesh during the field visit

Dr.V.V.Ramamoorthy, Dr.M.Surya Prakash, Sh.Madhukar Raj, Prof. T.N.Ananthakrishnan, Dr. G.Kumaravelu, Shri S. Ramanathan

Participants attending the meeting at Chennai on 17th April,2007 to discuss strategies to combat gall problem in Eucalyputs

Organised by

INSTITUTE OF FOREST GENETICS AND TREE BREEDING
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COIMBATORE

To discuss the strategies to be adopted to prevent and contain the gall insect *Leptocybe invasa* problem in Eucalypts, a field visit cum meeting was arranged with experts from research institutes, wood based industries, Forest Development Corporations, State Forest Departments and other concerned at Chennai on 17 April 2007.

A field visit to 50 ha. young plantation in T.P. Palayam at Sathyavedu, Chittoor District, Andhra Pradesh which was severely affected by the gall insect and the nursery of APFDC was arranged in the forenoon of 17 April 2007.

Sri Madhukar Raj M.D, APFDC briefed the delegates about the activities of APFDC and the gall problem. The delegates had close observations on the extent of damage and intensity of attack by the gall insect in the 2006 Eucalypts plantation raised at Sathyavedu and the seedlings in nursery wherein the ITC clones numbers 3, 7, 10 are used.

Discussion meeting was held in the afternoon at Chennai after the field visit. Prof. T.N. Ananthakrishnan, eminent Entomologist and former Director, Zoological Survey of India and Entomology Research Institute, Chennai chaired the session. Dr.M. Surya Prakash, Director, IFGTB, Shri. C. Madhukar Raj, Managing Director, APFDC , Dr. G. Kumaravelu, Additional PCCF, Tamil Nadu Forest Department, Sri S. Ramanathan, Managing Director, TAFCORN and Dr. V.V. Ramamurthy Senior Scientist, Indian Agricultural Research Institute, New Delhi shared the dais.

SUMMARY OF DISCUSSION

- Introductory remarks and the origin of the gall problem in Peninsular India and the activities initiated by the Institute for preventing and containing the problem were briefed by Dr. M. Surya Prakash Director, IFGTB.

- Shri C. Madhukar Raj, Managing Director, APFDC made a presentation about the problems encountered by the APFDC during the last few months in the young plantations and nurseries due to the gall problem and measures taken by them to contain the menace. He explained the inability to control gall infestation in nurseries even after repeated pesticide sprays. He urged the participants to discuss and formulate management strategies to contain the gall problem in order to avert huge loss to the Corporation and other planting agencies.

- Shri. S. Ramanathan, MD, TAFCORN observed that the ITC clone No. 10 is less susceptible and ITC clone no 285, performing well in many areas of Tamil Nadu is severely affected by the gall. He observed that the affected plants recovered from the gall infestation after the rains. He opined that the drought situations might be the predisposing factor for the incidence of gall. He suggested for soil analysis and usage of clones which are matching to the sites.

- Dr. G. Kumaravelu, Additional PCCF, Tamil nadu Forest Department said that the gall problem was first noticed in Clone no. 128 in Marakkanam area of Tamil Nadu during 2004. Application of chemical pesticides was carried out and subsequently the gall problem was not noticed in Marakkanam area. He suggested screening *E. tereticornis* plantations for identifying resistant candidates.

- Dr. S. Ramani Project Directorate of Biological Control, Bangalore is of the opinion that classical biological control, wherein the natural enemies are introduced to control a pest may be an ideal solution. He mentioned that in Australia the natural enemies *Aprostocetus* sp. and *Megastigmus* sp. play a significant role in controlling the population of *L. invasa*. In Israel classical biological control is under test against another gall inducing pest of Eucalypts namely *Ophelimus maskellis.* He stated that biological control agents of *O. maskellis* and *L. invasa* are under quarantine test in Israel. He stressed the need for testing different species of Eucalypts for resistance against gall insect.

- Prof. T. N. Ananthakrishnan highlighted the importance of exploring the presence of secondary metabolites inducing resistance against the pest in clones of Eucalypts which may play a role in constituent or induced resistance. He also suggested using of suction traps for trapping adult insects in the nurseries and exploring the possibility of Azadirachtin -A in making the adult insects sterile, there by reducing the pest population.

- Dr. V. V. Ramamurthy from IARI, New Delhi suggested application of granular insecticides in nursery, standardization of sticky traps with different colours to trap the adult rather than controlling the larvae. He further expressed ICAR's desire for collaborative research on this aspect.

- Dr Virakthamath, GKVK, Karnataka said that clonal level variations need to be studied through screening of Eucalypts in a much wider scale. Detailed studies on the distribution aspects of the pest, biology, ecology, behavioral aspects of adults, number of generations in a year are required for formulating sound control measures. As a long term measure, identification of resistant clones and its modifications through biotechnological interventions need to taken up. It is necessary that a workable package to be developed within a year for the management of gall problem.

- Prof. Subbarathnam from Acharya N.G. Ranga Agricultural University, Hyderabad also suggested that natural enemies available in the country should be searched before importing new agents from their native countries. The quarantine department should also be informed and alerted about the invasive species. Further, he opined that the badly infested seedlings of susceptible clones in the nursery should be destroyed to eliminate the inoculum.

- Dr Y. Sridhar from FRC, Hyderabad opined that the inefficiency of pesticides may be because of the less waiting period available for the insecticide to get translocated in the plant system due to frequent watering regime followed in the nursery. Planting of more number of clones or species mixture in a given area may restrict the spread of the pest. Unwanted stumps producing coppice that act as breeding material for the gall insects must be destroyed.

- Dr O.K.Rama Devi, Scientist from IWST, Bangalore suggested to look into the physical parameters like bark thickness and chemical variations in Eucalypts oil which may act as deterrent for the gall forming insects.

- Prof. Jim Thomas, Kerala Agricultural University, Thrissur suggested foliar application coupled with root application of insecticides like chlorpyriphos and protective raising of nurseries under enclosures to exclude the pest. Sodium silicate at 3% level may be tested against gall insect.

- Shri S.N. Rao, ITC, Bhadrachalam informed that best adapted technologies were employed in the selection of superior clones by ITC that were further subjected to multi-locational trials to obtain site specific clones. He was of the view that further planting of the highly productive clone No. 10 which is reported to be highly susceptible to gall insect attack need not be discontinued. Instead chemical or biological measures acceptable to all should be evolved. The susceptible clones stand a chance to recover and establish later.

- Shri Shyam Prasad, Regional Manager, APFDC said that the gall wasp was reported form 22 countries and therefore some control measures may be already available. He proposed for scanning the available literature, instead of starting form scratch.

- Dr M.Surya Prakash informed the delegates about the ambitious breeding programme in Eucalypts is underway in IFGTB on the basis of past 15 years of research. As part of the same 30 superior clones have been short listed which will also be screened against gall insect. Plans are underway to release 10 superior clones during this year by the Institute. He also mentioned about the Dept. of Biotechnology sponsored networking programme for developing clones based on specific traits.

- Prof. T.N.Ananthakrishnan in his concluding remarks strongly advocated the need for establishing a National Centre for Gall Research at IFGTB, Coimbatore as a fitting tribute to the memory of Prof. M.S.Mani, a renowned Cecidologist (Gall specialist) whose birth centenary falls in the year 2007. He also stressed for inter -institutional collaboration between different organizations working on gall.

RECOMMENDATIONS

1. A study has to be undertaken immediately on Bioecology of the gall insect pest *Leptocybe invasa* including the predisposing factors. Information from other countries where this pest was noticed earlier should be collected in addition to generation of first hand data. Phenology of the host and host specificity of the pest have to be studied parallelly to understand host-pest interactions.

2. The Eucalyptus germplasm in the country has to be screened immediately for potential candidates expressing tolerance to the pest, for further testing and deployment in breeding programmes as well as clonal forestry. The anatomical/ biochemical characteristics responsible for the observed tolerance as well as susceptibility be studied.

3. Clones developed by the state Forest Departments, Forest Development Corporations, Wood based industries and research organizations should be screened for tolerance and such screened in material should be publicised.

4. Biological control measures have to be evolved urgently with a special emphasis on Classical Biological Control methods as deploying chemical control measures are found to be not only ineffective and expensive. Efficacy and cost effective ness of use of colour insect traps, kairomones etc., also be studied.

5. So as to prevent the spread of the pest hitherto unaffected areas and plantation sites, infested stock should not be moved from the present location. The infested nursery stock should not be considered for planting in the ensuing planting season as it becomes a source of infestation where the pest is not reported at present. Therefore the participants after carefully considering the possibility of the pest becoming an epidemic, recommended destruction of the infested stock.

6. Concerned agencies in Government of India be advised on the need to adopt stricter quarantine measures while exporting and importing eucalypts germplasm.

7. Eucalyptus growers, foresters, researchers and industries should be alerted in print and electronic media and a control room be set up at the Institute to monitor the pest. The Institute may also consider setting up a GIS cell to track the movement of the pest and to study the factors aiding its survival and spread.

8. The impact of the pest on the productivity of eucalyptus plantations and further impact on the pulp and paper production should be studied.

9. Since the clone ITC-10 is reported to be highly susceptible to the gall pest in Andhra Pradesh while the same is reported to be less affected in Tamilnadu, the correct identity of the clones called as ITC-10 in these States has to be resolved by IFGTB.

10. A coordinated programme for management of the pest, evaluation of the control strategies, development of resistant clones and breeding of resistant varieties should be formulated urgently. The IFGTB which has done the initial work on this matter may consider developing an all India co-ordinted project and identify a number of research projects, encompassing all the above aspects, which can be handled by experts from Research Institutes of ICFRE, ICAR, SFD, Wood Based industries and Agricultural Universities.