ABOUT IFGTB

Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore is a National Research Institute under the Indian Council of Forestry Research and Education. IFGTB envisions a wood secure society. The Institute primarily aims to carry out research to improve productivity of forest tree species through conventional breeding programmes and biotechnological interventions. The major areas of research include tree improvement , breeding, planting stock improvement, marker assisted selection, genomics, clonal propagation, agroforestry systems, climate change research, integrated disease and pest management, seed handling and testing, eco restoration and conservation.

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ENVIS established by the Government of India, in 1982 has been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. all over the country. It is a comprehensive decentralized information system on environment involving effective participation of institutions / organisations in the country actively engaged in work relating to different subject areas of environment. A large number of nodes, known as ENVIS Centres, have been established in the network to cover the broad subject areas of environment with a Focal Point in the Ministry of Environment, Forest and Climate Change.

INSTRUCTIONS TO CONTRIBUTORS

Dear Author/ Subscriber/ Contributor,

We invite contributions to the ENVIS Newsletter issues! The ENVIS Resource Partner at IFGTB focuses on Forest Genetic Resources and Tree Improvement. It aims to act as a window for quality scientific publications and a forum for presenting your thinking on the challenges in the fields of FGRs and tree improvement. The ENVIS Newsletter, Van Vigyan, a quarterly publication, publishes original research articles, reviews, reports, research highlights, news-scan etc., related to the thematic area of the ENVIS Resource Partner. Original research and review articles, notes, research and meeting reports are invited for the newsletter. Details of forthcoming conferences / seminars / symposia /trainings / workshops also will be considered for publication in the newsletter. Articles may be sent in Times New Roman (with font size 12) in double spacing with a maximum of 5-6 typed pages. Photographs/line drawings and graphs need to be of good quality with clarity for reproduction in the newsletter. Only electronic submission will be accepted.

Details may be sent to: ifgtb@envis.nic.in.

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Forest Genetic Resources & Tree Improvement

VAN VIGYAN

INSTITUTE OF FOREST GENETICS AND TREE BREEDING

(Indian Council of Forestry Research and Education)

From the
Director's Desk

Greetings from the IFGTB family!

I am happy to inform you that I have taken over as the Director of the Institute. The Environmental Information System at IFGTB has been providing a base for information dissemination in issues related to Forest Genetic Resources and Tree Improvement. This newsletter is a component of the ENVIS Programme, other components for increasing public awareness on FGRs include providing information through databases and replies to queries. Each issue of the newsletter provides information on different tree species in India. It also provides an insight into research on various aspects in trees, both basic and applied, to increase awareness among the public.

I sincerely hope that the information content of the newsletter would be of interest to tree researchers all over the country. I would like to thank to the ENVIS team for their support towards preparation of this newsletter.

Mohit Gera
Director, IFGTB

In this issue

Know Your Trees - *Hardwickia binata* (Indian Black Wood)

Know Your Trees - *Hardwickia binata* (Indian Black Wood)

Taxonomic position – Super Kingdom – Eukaryota; Kingdom – Viridiplantae; Phylum – Streptophyta; Subphylum – Streptophytina; Order – Fabales; Family – Fabaceae; Subfamily – Detarioideae; Tribe – Detarieae; Genus – *Hardwickia*; Species – *binata*

Common names

Indian Black Wood (English); Anjan (Hindi); Kammara, Kamra (Kannada –, Malayalam – Aacha, Achamaram; Marathi – Kamra; Sanskrit – Anjan; Tamil – Aacha, Acha, Karachi; Telugu – Yepi

Introduction

Hardwickia binata is native to South East Asia and is considered endemic to India, Pakistan and Nepal. Populations have also been found in Bangladesh, Cambodia, Laos, Thailand, Vietnam, Myanmar, Malaysia, Philippines, Brunei, Indonesia and Papua New Guinea in the West (Kundu, 2011).

Being a multipurpose tree, it has high economic value and grows in dry savanna forests of Deccan Peninsula in Central India (FSI, 2003). It is distributed in isolated blocks and patches in the drier parts of Central and Southern India. It is found in Madhya Pradesh, Chhattisgarh, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, and also in Uttar Pradesh and Bihar. In Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka, there are certain gregarious patches of *H. binata* designated as *Hardwickia* Forest which is found on shallow hard gravelly soil over trap rock (Singh *et al.,* 2007). In Karnataka, Bellary Forest Division may be called a *Hardwickia binata* division as this species is predominantly found both as natural and plantation crop in the entire forest of the Division. To a certain extent it is also cultivated in plains. It is one of the species preferred for semi-stabilised or stabilized sand dunes.

Hardwickia is a monotypic genus (Seetharam and Kotresha, 1998). Etymology of *Hardwickia binata Hardiwckia* – for the British botanist Thomas Hardwicke (1755-1835) and the specific epithet *Binata* in Latin refers to two leaflets. The species is a gregariously growing moderate to large sized deciduous tree which can reach to a height of 36 m, having a girth of up to 4 m with a clean cylindrical bole of 15 m. The conical shaped crown during the initial growing stages gradually extends laterally as the tree ages. The bark is almost silvery white and smooth during the initial stage of tree growth which progressively becomes dark grey and rough with irregular vertical cracks as the tree grows old. The bifoliate leaves which are 6 cm long and 2 to 3 cm wide are alternate and resemble Bauhinias. The leaves are differentiated from the Bauhunias on the basis of being actinodromous which means – three or more primary veins that diverge radially from a single point at or above the base of the blade and running towards the margin, reaching it or not. The tap root has an innate ability to penetrate crevices of hard ground.

H. binata a characteristic species of degraded dry deciduous forests is a typical hardy species found in dry and hot climate areas having very high temperature during the summer season, scanty or no rainfall during monsoon and frequented by drought. In its natural range, the maximum temperature may reach about 47°C while the minimum temperature ranges from 1 to 10°C and the rainfall ranges from 250 to 1000 mm. Though not an exacting species with reference to soil conditions, however in its naturally growing areas, it is exposed to wide variety of geological formations and soil conditions. It has been mentioned that quartose, reddish gravelly sand, crunching under feet is a characteristic soil of *H. binata*. For its better growth, the tree prefers deep porous soil with fissured underlying rock so that its root penetrates deep into the soil, it tolerates acidic to neutral soils (Luna, 2005). Some of the associated species are *Anogeissus latifolia, Boswellia serrata, Chloroxylon swietenia* and *Pterocarpus santalinus. H. binata* is considered to be an indicator species for the presence of quartzite.

Phenology

The tree remains leafless during the end of winter season although for a very short period. The young leaves that sprout subsequently in April has copper coloured tinge initially. The specialty of this tree is that the tree is completely with leaves during the hot summer and can be distinctly seen among its associates. The pale yellowish green flowers which are small generally appears from July to September depending on the locality factors. By November the pods develop and ripen in April or May. The brown coloured winged pods known as samaras start falling in May but are carried further by the wind. The tree produces seeds annually, but good seed years can be after three to five years depending on the local conditions. It is believed that drought period induces profuse seeding. Kundu (2011) reported that trees start producing seeds at the end of 20 to 25 years while coppice grown trees may start seeding at young age of seven years.

Seed Collection, Processing and Nursery Techniques

The winged fruit (samaras) initially are green in colour and gradually turns to brown/copper colour when it reaches maturity (the moisture content is about 10 to 12%). The samaras which are 5 to 7.6 cm long and 1 to 1.5 cm wide have one seed near the apex. The samaras are to be collected from the tree and those that have fallen on the ground are generally insect damaged and can be avoided. If the process of collection is delayed, the samaras may be blown away. In some cases, samaras are collected when they are yellowish green in colour and after ripened by drying in shade on the floor as a single layer so that moisture content reaches 4 to 6%. The samaras fall under orthodox seed category and can be stored in gunny bags. To keep the seeds stored for a longer period (> 5 years), it can be kept at freezing temperatures of 0°C to -20°C. It has been reported that seed viability could be retained up to two years when kept at ambient temperature ranging from 15 to 46°C.

The samaras are not dormant and do not need any pretreatment. About 3880 samaras weigh a kilogram constituting 4800 to 5200 seeds. For facilitating easier and quick germination, the samaras may be at least soaked in water overnight or for 24 hours and then sown. When removed from samaras, the seeds are flat, pointed at one end and the opposite end is round with a dimension of 2 cm length and 0.75 cm width. Seeds germinate well, but

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are easily affected by fungus and ants. Therefore, it is always better to sow the samaras rather than removing the seeds from them. It is always preferred to raise the seedlings initially by sowing the samaras in a pure sand bed to facilitate easy germination and to minimize damages to seedlings during pricking. Prior to monsoon, fresh seeds are to be sown in the nursery. Care must to be taken not to sow the seed deep and must be spread on the germination bed. A thin layer of soil must be covered over it. A study conducted by Masilamani *et al.* (2008) suggest that placing the seeds with the embryo in a horizontal or inverted position at a depth of 1.5 cm and 3.0 cm resulted in higher germination, better root and shoot growth along with greater dry matter production. The germination is epigeal. If mature seeds are collected at the right time, germination percentage can be greater than 75% as found in the study carried out at Institute of Wood Science and Technology (IWST), Bengaluru. The seedlings can be pricked from the sand bed at two leaf stage and then transplanted to polythene bags. During the initial growth stage, root system will be longer compared to shoot system.

As a thumb rule, strict care must be taken to avoid excessive watering. Initially the seedlings are highly susceptible to over head light, therefore, the seedlings are to be under shade. The seedlings are ready for field planting when they are ten months old. Paliwal *et al.* (1998) reported that quality seedlings of *H. binata* can be successfully raised in the nursery by reusing sewage water (as an agricultural waste which may be relatively high in plant nutrients) in combination with irrigation water.

Micro-propagation techniques

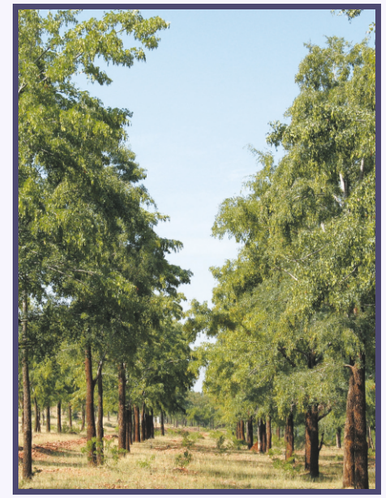
Very few attempts have been made in micro-propagtion of *H. binata.* Das *et al.* (1995) could induce somatic embryogenesis from the callus cultures derived from immature cotyledonary explants. Anuradha *et al.* (2000) attempted *in vitro* propagation using various explants such as mesocotyls, shoot tips and axillary buds from 15 days old seedlings. A total of 112 shoots/seedlings could be obtained within three cycles of 30 days duration each. Chand and Singh (2001) reported that from semi-mature zygotic embryos, somatic embryogenesis could be obtained directly without an intervening callus phase. The embryogenic potential was found to be retained even after four years of repeated subculturing. This biologically significant system of *H. binata* has greater potential in obtaining artificial seeds and conducting various experiments on genetic transformation. Mandora *et al.* (2014) reported issues at various stage of propagation such as phenolic compounds leaching, premature leaf fall and callus development during rooting. A suitable working protocol using axillary bud of the seedlings nodal segments for *in-vitro* propagation was standardized. The plantlets thus obtained were subsequently hardened through two stage procedure and finally transferred to experimental field.

Growth and Yield

H.binata grows slowly under natural conditions, but in plantations or when artificially tended, the tree grows rapidly. Troup (1921) reported that mean annual girth increment in *H. binata* is 1.60 cm. In a study carried out on 37 year old trees (n=45), planted along the road side in Khandwa, the mean annual height and girth were 29 cm and 2.2 cm, respectively (Luna, 2005). In a 40 year old plantation grown in Gaddankere (Bagalkote Range, Karnataka) it was reported that annual growth rate varied from 0.75 to 3.75 cm with average being 1.97 cm/year. In a 20 year old plantation (Madapura, Bagalkote Range, Karnataka) the girth ranged from 16 cm to as high as 85 cm with an average of 35 cm. The annual girth increment varied from 0.8 cm to 4.25 cm per year (Arun Kumar *et al.,* 2017). The growth of coppice shoots is believed to be better (Luna, 2005).

Tree Improvement

Tree improvement studies on *H. binata* are sparse. The Karnataka Forest Department has identified candidate plus trees. Some field observations recorded by IWST for different aged plantations at various locations revealed considerable variability for growth and wood traits specially such as heartwood content, specific gravity and calorific value. The calorific value ranged from



4160 and 4440.4 kcal/kg. Samaras collected from different locations in Karnataka weighed between 5.67 and 6.05 g. The seed weight varied from 0.166 to 0.244 g indicating the variability for seed traits. In a study carried out for a 20 year old plantation of *H. binata* , the girth ranged from 43 to 86 cm with an average of 58.87 cm and CV of 15.82%. The lowest and highest heartwood thickness (%) varied from 68.09% and 6.35%. The study also showed that heartwood thickness and tree girth had a strong positive correlation (r=0.74) which can be used as a criteria while selecting superior genotypes (Arun Kumar *et al.,* 2017).

Agroforestry Practices

H. binata is one of the most compatible nitrogen fixing tree species that can be used in agroforestry for short duration dryland crop in semi-arid tropical areas. It is also an ideal tree species in degraded pastures and barren rocky area especially in Southern Plateau and Hills and in Gujarat plain and hill region. The crown architecture makes it an ideal tree for agroforestry. Being a hardy species and its utility for fodder and fuel in drier regions, it can help to diversify production. In a study carried out in Rajasthan, it was found that trees had deep rooting pattern and soil resource mining area was lowe

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Table 1: Summary of statistics on Girth, Bark, Sapwood and Heartwood thickness (%) for *H. binata* trees (20 years old) in Madapura plantation, Karnataka (n=95*)

Parameters	Girth (cm)	Bark thickness (%)	Sapwood thickness (%)	Heartwood thickness (%)
Range	43 – 86	6.18 - 20.56	21.10 – 89.76	6.35 - 68.09
Mean	58.87	10.26	53.70	36.02
Standard deviation	2.68	2.63	16.80	17.54
CV (%)	15.82	25.64	31.29	48.68

(* five trees which did not have heartwood have been excluded) Source: Arun Kumar *et al.,* (2017)

Table 2: Correlation for Girth and wood traits in 20 year old trees of *H. binata*

	Girth	Bark thickness	Sapwood thickness	Heartwood thickness
Girth	1			
Bark thickness	-0.63**	1		
Sapwood thickness	-0.45**	0.39**	1	
Heartwood thickness	0.74**	-0.57**	-0.98**	1

(** significant at p<0.01) Source: Arun Kumar *et al.,* (2017)

because of relatively less spreading roots or lesser rooting area. This trait enhanced its status as being more suitable for agrofrestry system (Singh and Singh, 2015). A study conducted at National Research Centre for Agroforestry, Jhansi, U.P., reported that a density of 200 trees per hectare is an ideal situation to provide favourable micro-environment conditions to the intercrops It was also mentioned that yield of *Glycine max* (Soybean) grown as intercrop with the above mentioned tree density was comparable to that of pure crop (Shanker *et al.* 2005). Another study conducted in 2003 inferred that seed yield of sunflower grown as intercrop in pollarded trees of *H. binata,* was comparable with that of sole cropped sunflower. Sunflower yielded 688 kg/ha while sole crop yielded 717 kg/ha. Singh and Rathod (2007) opined that integrating *H. binata* along with crops, provides greater benefit to cropping systems in terms of relatively greater concentrations of soil organic matter and NH_4-N. For rejuvenation and soil fencing in semi arid zones, while managing common property resources for augmenting forage production, one of the new system proposed which includes multipurpose trees, grasses and fodder legumes. *H. binata* is one of the important trees that fulfill all the objectives of the system (Venkateswarlu, 1997). In a mixed pasture which consisted of *Chrysopogon fulvus*, *Stylosanthes hamata*, *S. scabra* and *Hardwickia binata* the soil organic carbon fixed was 0.71t/ha (Rai, 2001). A study carried out by Korwar (1994) in Bijapur, Karnataka, reported that in eight year old trees (5 x 2 m spacing) the standing biomass was estimated to be 9.9 kg/tree (dry weight) out of which stem constituted 75% and the leaf yield obtained from loppings was estimated to be 0.9 kg/tree/yr. When the trees were 6-7 years old, the intercrop grown such as rabi sorghum yielded 52% higher than that of control. The common agrisilvicuture system for *H. binata* (Anjan) is: Anjan+wheat, Anjan+black gram, Anjan+mustard Silvipasture: Anjan+*Cenchrus ciliaris* (Chaturvedi *et al.,* 2017).

Population status and conservation

There are no any detailed studies carried out in case of population status and conservation. However, a pilot study carried out at Institute of Wood Science and Technology, indicated that natural regeneration (in those populations studied) was a concern both in natural populations and plantations. Two issues that were considered as the reasons for low regeneration were fire and browsing. However, in its natural growing areas that provided some congenial aspects in terms of soil fertility, moisture availability and least disturbance from human and livestock, the regeneration was encouraging.

Pests/diseases

Young seedlings in nursery are susceptible for wilt disease caused by *Fusarium oxysporum*. The wilting starts from the tip of the plant and along the leaf margin, resulting defoliation and subsequently death of seedlings. Spraying of Bavistin helps in disease reduction. (Rai and Mamatha, 2005). Pillai (1981) has reported infestation of leaves of *H. binata* by a white fly (*Acaudaleyrodes rhachiporia*). Gawte and Papdiwal (2011) observed stem galls on the tree trunk. The galls were oval, hard, woody and persistent and the colour was similar to that of stem which subsequently darkened. Freshly felled logs in storage are attacked by a borer (*Aeolesthes holosericea* Fab.). This can be avoided by immediately debarking of logs and disposing of felling refuse so as to prevent oviposition of the beetles. Care must to be taken while storing of logs in an open area and stacking of logs in a dense manner may be avoided. For long protection, water emulsion spray of 2% malathion or Fenitrothion can be carried out (Khan, 1989).

Wood Properties/ Utilization

The wood is extremely hard and heavy, fairly durable and moderately strong and highly resistant to decay and classified as class I timber. The graveyard test conducted at FRI, Dehradun showed an average life of 310 months and some samples were not rejected even after 427 months (Rao and Purkayastha, 1972). The average dried weight is ~745kg/m^3, specific gravity (Basic – 0.61 and at 12% moisture content – 0.74), Janka Hardness of 6490 Newton. The heartwood is dark reddish brown streaked with purple and is clearly differentiated from sapwood which is pale white in colour. The tree finds uses where great hardness and heavy weight is required such as beams, mine props, bridge and house construction, naves of cartwheels, ploughshares, clod crushers, agricultural implements and bridge building. It is one of the timbers accepted by Indian Railways for sleepers even without treatment. The wood has high calorific value (4900 k cal/kg) and is used for charcoal making. The leaves are classified as good fodder but cannot be used as sole feed (Singh, 1982). As mentioned earlier, the tree is popular now in agroforestry. The bark from young trees yields a strong fibre which is used for rope making and lasts longer when kept moist. Being a leguminous tree, it also fixes nitrogen. The calorific value of completely dry sapwood and heartwood is 4891 and 4952 kcal/kg. making it an excellent fuelwood. *H. binata* fiber when alkali treated, enhanced its crystallinity, thermal stability and tensile properties. When characterized, the properties were comparable to other common lignocellulosic fibers. Fibers can be potentially used as reinforcement in polymer matrix composites (Sandeep *et al.*, 2016). Treated bark powder can be used for the removal of mercury from water and wastewaters. The degree of removal was found to be dependent on the initial pH of the solution and it increased as the pH increased (Deshkar, 1990). Methy ethyl ketone extract prepared from dried whole plant, a novel and potent DNA polymerase α inhibitor and a first diterpenoid know as Harbinatic acid (Deng *et al.,* 1999). Phytochemical studies carried out on the root bark exudates showed the presence of 22 organic compounds of which five compounds having anticancer activity. *In vitro*

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cytotoxic activity on the cell lines indicated higher degree of inhibition against African Green Monkey Kidney Epithelial cells (Vero), Human cervical cancer cell lines (HeLa) and Human breast cancer cells (MCF-7) (Prabakaran *et al.,* 2014). Leaf extracts of *H. binata,* has shown antibacterial activity in water purification to an extent that 82.05% of *E. coli* was removed from the water with 30 minutes contact time (Somani *et al.,* 2011). Leaves are added in bath water to reduce body heat of kids (Pawar and Patil, 2010). Pandey (1978) while categorizing dry tropical forest vegetation categories with reference to susceptibility for injuries caused due to pollution from thermal plant indicated that *H. binata* is moderately tolerant tree species. While studying on impact of simulated acidic mist on growth, it was found that the hard leathery upper epidermis of *H. binata* leaf could partially resist the acidic mists (Muthuchelian *et al.,* 1995). It is interesting to note that while considering the avenue trees to be planted in Lutyen's Delhi, Lord Hardinge requested Mr. Peter Clutterback to suggest list of few trees. Based on his forestry knowledge, nine species were listed as 'Avenue tree first class' in which *H. binata* was also one of them (Krishnan, 2010).

H. binata is an important tree of Indian forestry, its popularity is much lesser than what it is anticipated from such an important multipurpose species. Reasons may be plenty and discussions on that could be more academic, however, such species need more encouragement and popularity both from Government and farmers.

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Recurrence of Gall Wasp In *Eucalyptus*

Leptocybe invasa Fisher & La Salle (Hymenoptera: Eulophidae) outbreak has been observed since 2007 in India inflicting considerable damage in the eucalypts nurseries and plantation. IFGTB has taken a lead role since then in networking the stakeholders, alerting and assessing the situation in southern states of India. Since pesticide application didn't give desired results, gall tolerant clones were identified and stakeholders were advised to withdraw susceptible candidates as a management strategy. Natural enemies were imported from Israel through National Bureau of Agricultural Insect Resources, Bangalore and released. Through these measures, the problem was brought under control by 2012. A small population continued to survive in unattended plantations and coppice shoots without causing any economic damage since then. The spread was constantly monitored. Recently, an outbreak of the wasp was observed in nurseries and multiplication gardens maintained by Tamil Nadu News Print Limited (TNPL), Karur, Tamilnadu. TNPL multiplies and supplies various pulp wood species, mainly Eucalyptus to farmers to raise pulpwood plantations with a buy back arrangement.

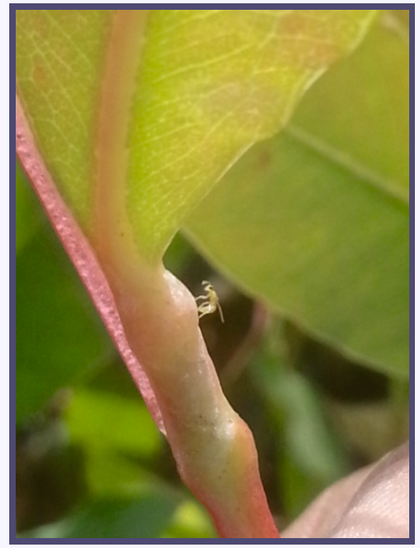

Fig-1 *Q. mendeli* parasitizing stage II galls of *L. invasa* on Eucalypts.

Similar to the attack in 2007, the present assessment also shows recurrence on Clone ITC -3. The percent infestation is below 40 and intensity of infestation mostly LOW and rarely at MEDIUM level. Majority of the galls are at Stage-II with almost 1.5 to 2 months old galls characterised by swellings on stems, petioles and midribs. No emergence holes were noticed. Limited number of adult *L. invasa* wasps were trapped indicating that majority of galls are not mature; hence emergence has not occurred. Sweep net collection analysis reveals prevalence of the introduced bio-control agent *Quadrastichus mendeli* and a small proportion of *Megastigmus* sp. This is a good sign as the introduced natural enemies particularly *Q. mendeli* is establishing alongside the gall wasp. This can exercise a control of the eucalyptus gall wasp spread. The current situation demands regular monitoring with immediate implementation of the following to bring down the gall infestation in nurseries.

Management measures to be followed include monitoring and regulated lopping of susceptible clones like Clone 10 coppice/ saplings/ trees in germplasm collections to eliminate the breeding areas and origin of gall wasp population. Favourable conditions should be maintained for the natural enemies to multiply and spread. Cautious maintenance of a nucleus germplasm of gall susceptible candidates (Clone -10) will help in natural enemy survival. Pesticide application in Clone -3 to be withdrawn to help build up natural enemy population. The recurrence of gall wasp can be checked by removing and pruning the highly infested plants. Production of susceptible clone (ITC Clone-3) can be suspended till gall infestation is brought under control.

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Recent literature on FGRs & TIP

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ENVIS ACTIVITIES

Observance of World Wetland Day

IFGTB-ENVIS Resource Partner on Forest Genetic Resources and Tree Improvement observed the World Wetland Day on 02nd February 2018. All the technical staff, research students and field assistants of the Institute participated in the event. Dr. Kannan C.S. Warrier, Scientist F and Coordinator ENVIS gave an introduction on the Ramsar Convention and welcomed the gathering. Dr S. Murugesan, Scientist G and Director IFGTB during his inaugural speech highlighted the importance of conservation of wetlands. A poster depicting the importance of conservation of wetlands developed by the IFGTB-ENVIS RP was released by the Director. Posters received from the Ministry of Environment Forest and Climate Change were also released. A short film on Chilka Ramsar Site in Odisha was screened during the occasion. Copies of the awareness posters were distributed to the school children.

Awareness Programme

IFGTB-ENVIS, Government Law College NSS Unit Coimbatore and the School Education Department Coimbatore organized a tree sapling planting programme on 20.02.2018 to create awareness among the students on the conservation and importance of trees and forest. The planting programme was inaugurated by Dr Gopalakrishnan, Principal of Govt. Law College and Dr T. Vamadevan, Information officer, IFGTB-ENVIS. Tree saplings of *Thespesia populnea*, *Albizia lebbeck, Syzygium cumini, Bambusa vulgaris, Calophyllum inophyllum, Annona muricata* etc were planted.

Observance of 'International Day of Forests'

IFGTB ENVIS Resource Partner on Forest Genetic Resources and Tree Improvement observed the 'International Day of Forests' on 21st March -2018 at IFGTB. Dr Vijay Karthikeyan, IAS, Commissioner Coimbatore Municipal Corporation was the chief guest. He spoke on the theme forests & sustainable cities. Dr Mohit Gera, IFS, Director, IFGTB presided over the function. An awareness poster on the theme was released during the occasion.