SCOPE OF POPLAR CULTIVATION

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Scenario of forests

The dramatic reduction in natural forest area is today a global concern and the threat to tropical forests is one of the world's most serious environmental problems. The world is losing upto 20.4 million hectares forests of tropical forests annually, about 56,000 hectares a day or equivalent to an area of the size of Britain (Houghton, 1990). At this rate all tropical forests will be cut during the 21st century leading to the extinction of one quarter of the world's species (roughly estimated at 10 million) before the middle of this century (Reid and Miller, 1989).

The natural forest cover of India declined by about 35 per cent between the years 1900 to 2000 and with the accentuating problems of steep rises in population, poverty and a surge in industrial wood demand, by 2050 AD little of natural forests will remain, unless conservation measures are sincerely implemented, while production of forestry goods appreciably increased.

Industrial wood demand today and tomorrow

An expert committee on "Review of Afforestation policies and Rehabilitation of Wastelands" set up by the Ministry of Environment & Forests in 1997 acknowledges a gap of 20 million m^3 between demand and production of industrial timber in the country. This demand is expected to rise to 110 million m^3 by the year 2050 AD (Singh and Marzoti, 1996), whereas, in India the forest area and its productivity is on the decline. Timber imports today value more than Rs. 1,000 crores, draining valuable foreign exchange. Nature has amply endowed India with the two main resources of sunshine and precipitation, required to grow all the wood it needs, yet our inability to increase wood production all these years calls for a review of our policies and actions.

Of the three roles - environmental protection, social and productive, recognized for the forests since the inception of forest management, the present emphasis is primarily on the first two or conservation for environmental considerations and meeting needs of forest right holders/ dwellers. It has been forgotten that the role of forests as a producer of tangible goods if neglected, in spite of our firmest resolve, there could be no surety of securing any other role assigned to them. Unfortunately the productive role of forests has been assigned the lowest priority in our projects and remains relegated to the back drop.

Redefining forestry

With the advancement in scientific knowledge, it is increasingly becomes clear that the maintenance of integrity of natural forests in terms of their structure, species composition or bio-diversity and intangible service, they provide, should be the foremost goal of management. The sustenance of timber yields which earlier believed possible from natural forests is now questionable. Poore (1988) stated "It is not yet possible to demonstrate conclusively that any natural tropical forest anywhere has been successfully managed for sustainable production of timber. The reason for this is simple. The question can not be answered with full rigour until a managed forest is in at least its third rotation". Hardly any natural tropical forest continues to exist in its natural form over such long periods because of changes in land use management and released policies. Therefore, the integrity of natural forests and ecosystems can only be maintained when protected in their pristine state.

The concern of conservation of natural forests and ecological and environmental security can thus best be addressed by generating forest goods from areas outside natural forests. Plantation forestry offers the only proven recourse to sustainable timber or forest goods production, while assisting in safeguarding the integrity of natural forests. Yet all the ecological and environmental considerations, however lucidly submitted in arguments favouring adoption of plantation forestry practices may not be convincing enough to farmers, extension workers, financiers or donors to accept the recommendation, unless proven economically viable and remunerative. Many countries have successfully demonstrated the eco-economic sustainability of high rates useful biomass production from forest plantation consisting a variety of species like *Eucalyptus*, Pines, *Gmelina*, Acacias and Poplars etc.

Poplar based agroforestry

Few agroforestry systems of promise significantly contributing to industrial wood or timber production in India have been developed. In Southern, North-Eastern and Eastern India the most profitable models incorporate rubber with spices and in North-West India poplars with agricultural annuals. Today, the ubiquitous presence of poplars in agriculture lands all over the North-West plains of India (above 28 degrees parallel) are a reflection of 17 years of WIMCO Seedlings Ltd.'s ceaseless endeavour towards match wood production in collaboration with farmers. The success of Poplar based agroforestry venture has brought relief to many other wood based industries, particularly plywood that otherwise may have starved of raw material as a consequence of the ban imposed on felling and export of logs from the forests of the North-Eastern States. Poplars are today the most important among tree species constituting man-made forests in irrigated tracts of the upper Indo-gangetic plains demonstrating immense economic and industrial potential while contributing sizeably to the well being of farmers.

Poplar based agroforestry is dynamic and vibrant. The innovative farmers relentlessly experiment with cultivation of high value crops under the canopy of Poplars, refining agro forestry practices and rendering them ever more remunerative. Agriculture, which is in private sector in the States of Uttar Pradesh, Haryana and Punjab, today more than parallels public sector forestry in

creation of new timber resource. The extent of forest plantation raised in the public sector in above three States during the VIII Five Year Plan period were 68,035, 31,551 and 16,987 ha respectively (Anon., 1995) totaling to 1,16,573 ha or 23,314 ha per year. The area planted with poplars in the agriculture sector during the same period was also of the order of 23,000 ha per year, but compared to forestry plantations, it was five to ten times higher in productivity. Some of the Poplar plantations in agriculture sector produce mean annual increment of up to 50 m^3/ha/year, the average being 20 m^3/ha/year against a maximum average of 4.5 m^3/ha/year achievable from forest plantations.

Future of Poplars

Between 1984 till about 1990-91 WIMCO Seedlings Ltd. was the sole supplier of Poplar planting propagules of ETPs to the farmers. The profitability of Poplar based agroforestry by then had been firmly established and became common knowledge. This created a surge in demand for Poplar planting propagules and many new nurserymen entered the market. At present the estimated annual demand is about 10 million ETPs, WIMCO Seedlings satisfies about 30 per cent, whereas the rest is met by supplies from hundreds of small nurseries spread over West U.P., Haryana and Punjab. The total ETPs so far actually sold and planted over the 17 years since the initiation of the WIMCO Seedlings Poplar project, is to the tune of about 30 million; it is estimated that during the same period approximately an equal number were retailed by other nurserymen. Assuming an average rotation of 8 years, presently 30 million trees should be on the ground producing about 1.125 million m^3 (0.30 m^3/tree) of industrial wood annually, nearly one twentieth of the country's present needs. These 30 million trees may be covering about 0.06 million hectares of land with a density of 500 trees per hectare. With the present rates of planting or 10 million ETPs per year, on an average rotation of 8 years, 80 million trees are likely to occupy the irrigated farmlands by the next 5 years covering an area of 0.16 million hectares and considering the MAI to be 20 m^3/ha/year yielding 3-2 million m^3 of timber annually.

The irrigated agricultural area in the States of Punjab, Haryana, U.P. and Uttaranchal which has the potential to grow poplars (Anon., 1992) is given in Table 1.

Table 1

Irrigated argicultural area in the States of Punjab, Haryana, Uttar Pradesh and Uttaranchal

State	Irrigated agricultural area (ha)
Punjab (All districts)	70,55,000
Haryana (All districts)	43,37,000
Uttar Pradesh and Uttaranchal (Part)	63,00,267
Districts of Ghaziabad, Hardwar, Saharanpur, Meerut, Bulandshahr, Aligarh, Badaun, Bareilly, Moradabad, Rampur, US Nagar, Pilibhit, Lakhimpur, Sitapur, Hardoi and Bijnor Presently only these districts are considered for Poplar planting	
Total	1,76,92,267

Theoretically all of the 1,76,92,267 ha or 17.7 million ha of irrigated lands in the above States can support Poplar based agroforestry. On a conservative estimate at least 5 per cent of these irrigated agriculture lands or 0.885 million ha can be safely brought under Poplar based agroforestry without significant effects on present agricultural yields. This 0.885 million ha can hold about 440 million Poplar trees planted at density of 500 trees/ha. The timber generated annually from the 0.885 million ha will be about 15-20 million m^3 while the total wood biomass would be around 8 million tonnes, fixing an equivalent of 4 million tonnes of atmospheric carbon per year. Poplar cultivation thus assure economic prosperity for the farmers, sustained supplies of wood to the industries and ecological security to mankind. Poplar cultivation is therefore the best development of the present times and truly a green revolution.

Keeping Poplar based agroforest vibrant

Seeing the immense benefits and scope of the species in contributing to elevation of wood shortages the Poplar based agroforestry movement must be kept vibrant and alive. Poplar cultivation relies on clonal propagules having the desired tree form and growth performance. However, clonal culture and particularly mono-clonal culture is fraught with risks of insect and disease epidemics and in the long run inimical to crop safety. It is therefore imperative that new clones be continually bred and tested to replace the old and a mix of clones encouraged in plantations. Out of two most promising clones of the past decade, particularly clone G3 and G48 presently constituting 90 per cent of all clones planted have begun to exhibit signs of susceptibility to a variety of pathogens. Till very recently clone G3 because of its wide adaptability, excellent form and fast growth rate was the farmers favourite but over time has now become highly susceptible to the pathogen *Bipolaris maydis* which severely retards its capacity for good growth.

To ensure the productive continuity of Poplar based agroforestry enterprise, breeding new Poplar clones therefore becomes expedient. Over the past decade WIMCO Seedlings R & D unit has been engaged in the task of breeding new clones, testing them for comparative field performance vis-a-vis the old established clones and mass multiplication of the superior performing clones. The criteria of superior performance based on growth rates, desirable tree form, rootability of cuttings and disease resistance. Three of the indigenously breed clones namely Udai, Bahar and Kranti were released in the market for commercial planting during 1995-97, while more than a dozen new clones are in the process of multiplication for commercial sale or under field testing and are to be soon released for commercial planting. Breeding for improvement is a continuous endeavour and must go on unceasingly to replace the ageing clones.

Breeding of new Poplar clones

The Poplar breeding programme of WIMCO commenced in the year 1982. Half sib progenies of *P. deltoides* clones from open pollinated seed of best females, particularly G48, collected from matured plantations were raised yearly and subsequently screened for good phenotypic characters and disease resistance. The individual seedlings exhibiting best form, growth and disease resistance during the

period of development in the nursery being subjected to field trials for final screening. Two pronged approach has been followed, because of limitations regarding land availability for testing the selected seedling population. The best nursery seedlings exhibiting significantly better growth than the men of the population is cloned and subjected to replicated field trials in an appropriate experimental design to compare their performance vis-a-vis the coveted commercial clone G48. A part of the remaining healthy population is directly planted out in the field and periodically screened for growth and form. The selected individuals from both these sets of populations are cloned in adequate numbers and subjected to multi-locational trials for ascertaining their performance and suitability for cultivation under different environmental conditions. After 1985 some controlled crosses were also made between a number of male and female clones of *P. deltoides* and seedlings of G48 x G3, G48

Table 2

Mean height and diameter growth recorded at the time of planting and at 84 month age (December, 1999)

Name of individuals	Initial		Growth at 84 months age		Average Volume (Ob) (m^3/tree)
	Height (m)	Diameter (cm)	Height (m) $\bar{X}$ (SD) CV%	Diameter (cm) $\bar{X}$ (CD) CV%	
WSL-32*	5.6	2.7	31.9 (1.1) 03	31.9 (2.8) 09	0.887
WSL-27*	6.0	2.9	30.9 (3.0) 10	29.0 (1.5) 05	0.716
WSL-22*	5.0	2.5	30.2 (2.0) 06	29.0 (4.0) 14	0.700
WSL-A49*	4.9	2.9	27.4 (1.6) 06	30.6 (2.9) 10	0.700
WSL-31	5.2	2.5	28.5 (4.5) 16	29.3 (1.8) 06	0.676
WSL-39*	5.3	2.6	24.5 (2.4) 10	31.4 (5.4) 17	0.667
WSL-30	5.4	2.6	26.7 (2.8) 10	29.4 (3.8) 13	0.639
WSL-38	5.4	3.0	26.1 (1.9) 07	29.7 (2.6) 09	0.638
WSL-A26*	4.0	2.0	26.0 (1.2) 05	29.0 (4.1) 14	0.600
WSL-28	4.9	2.4	27.9 (1.5) 06	28.5 (2.9) 10	0.598
WSL-01	5.0	2.6	27.8 (1.1) 04	27.6 (2.1) 08	0.589
WSL-C-1	3.8	2.1	27.9 (3.0) 11	27.1 (4.7) 17	0.570
WSL-37	5.8	2.6	25.6 (1.0) 04	27.8 (3.8) 13	0.552
WSL-D54	3.7	1.9	27.1 (1.6) 06	27.0 (4.5) 17	0.550
WSL-24	5.3	2.6	27.0 (2.7) 10	26.6 (2.4) 09	0.534
WSL-D78	4.6	2.7	28.4 (2.2) 08	25.9 (5.2) 20	0.530
WSL-D68	2.3	1.0	27.4 (1.3) 05	26.1 (4.8) 19	0.520
WSL-E64	3.5	1.8	27.8 (1.5) 05	25.6 (4.5) 18	0.510
G48	3.9	2.0	27.0 (2.9) 11	25.7 (3.8) 15	0.500

*Clones are ready for commercial plantings/release

x S7C3, G48 x S7C4, G48 x S7C20, G48 x St-63, G48 x St-124, G48 x St-171, G48 x 113324, WSL-62 x S7C4, WSL-62 x S7C20, WSL-32 x 113324, WSL-39 x S7C3, 3201 x S7C7, 3201 x St-63, Kranti x G3 and Kranti x S7C3 etc., produced. Over the years upto 1992 nearly 79 new clones with commercial promise have been identified, three of them with high promise were clonally multiplied and released for commercial wood production under the names of Udai, Kranti and Bahar. The rest were field planted at a spacing of 5m x 5m during 1993 for comparing their growth performance vis-a-vis G48. Mean height diameter and volume (ob) attained by some of these new clones after 7 years growth as measured in 1999 are tabulated in Table 2.

Nearly 18 of these new clones have exhibited superior or at par performance compared to clone G48. Six top clones from this selection of 18 were multiplied in sufficient numbers during December 1999 and released to farmers for further trials, during the coming years some of these clones will likely replace G48 as the preferred clone.

To enable make controlled crosses within the various *P. deltoides* grafted mating gardens of the different clones are established every season. Evergreen clone (65/27) or seedlings are used as root stock, on which floral bud bearing branches collected from mature trees of known clones are grafted during February to March. The root stock-scion union takes place within a fortnight before bud break. Pollen collected from the male clones and transferred to the female flowers after which catkins are bagged with muslin cloth. The possible crosses are dictated by the timings of flowering in the male and female clones. Research on storage of Poplar pollen is of utmost importance in the controlled breeding of poplars. Established research institutions with facilities for research and storage of pollen can help and provide momentum to the breeding programme by removing the restraint of availability of pollen from a desired clone/species.

Table 3 provides a glimpse of the quantum of half-sib and full-sib seedling populations raised annually by the company, selections after first and second screenings in nursery and numbers finally chosen for intensive field trials in the last 5 years.

Besides the above the following half/ full sib seedlings raised over the past have also been released for direct field screening of promising individuals (Table 4).

Today over 65 clones are close to final stages of field screening and very near commercial release whereas, hundreds of clones are under different stages of pre release screening and testing. Depending on viability of seed collected and seedling population produced each year, the population of screened individual with promise continues to grow. The screening, multiplication and field trials phases require protracted periods of 8-10 years before the new clones can finally be released for commercial cultivation.

Trials with new agri-crops for intercultivation under Poplars

New species of agri-crops are also being screened for culture with Poplar trees, notable among them are Lettuce, Beetroot, Pineapples, Yams, essential oil yielding annuals e.g. Tagetes, Picholi etc., and some horticulture species. Pineapples and Yams

Table 3

Half-sib and full-sib seedlings populations raised annually by M/s WIMCO Seedlings Ltd., selections after first and second screenings in nursery and numbers finally chosen for intensive field trials (1995-2000)

Vintage of Seedling	Number of Seedlings raised	Number of Seedlings Selected on first screening	Number of Seedlings Retained after Second Screening	Number of Selected seedlings Retained for Field trials
1995	3600	430	37	36
1996	36,000	1850	129	114
1997	1,36,792 Half-sib	56,607	222	55
	2739 Full-sib	565	45	45*
1998	8379 Half-sib	4700	45	Clonally multiplied for field testing
	7507 Full-sib	6836	97	97**
1999	17492 Half-sib	13403	9624	-
	1809 Full-sib	1736	1618***	-
2000	55400 Half-sib	-	-	-
	2540 Full-sib			

* G48 x G3, S7C13 x S7C3, G48 x St-63, St-121 x S7C7, S7C8 x St-63 & WSL62 x S7C20

** S7C8 x 113324, S7C8 x St-71, S7C8 x S-75, S7C8 x St-171, S7C13 x St-67, S7C8 x 113324, S7C13 x St-67, S7C13 x St-124, S7C13 x St-171, G48 x St-124, G48 x St-171 and G48 x 113424

*** G48 x G3, G48 x S7C3, G48 x S7C20, G48 x 113324, G48 x St63, G48 x S7C4, S7C8 x St70, S7C8 x G3, S7C8 x 72/58, S7C8 x S7C20, S7C8 x St63, S7C8 x S7C4, S7C8 x 113324, S7C8 x 3167, S7C8 x S7C3, S7C13 x S7C3, S7C13 x St-63, S7C13 x G3, S7C13 x St-70, St-121 x S4C21, St-121 x St70, St-121 x S7C3, St-121 x S7C4, St-121 x S4C21, St-121 x S7C20, St-72 x S7C3, St-72 x S7C4, Kranti x G3, Kranti x S7C3, WSL-39 x S7C3 and WSL-32 x 113324.

particularly Zimikand have shown promise of cultivation as an undercrop with poplars among the essential oil yielding crops Picholi and Tagetes hold promise. The next stage is to ascertain the best cultivar and perfect the agronomic practices. Lettuce, Beetroot perform very well under Poplar and register yields as high as 275 qtl/ha and 150 qtl/ha respectively. So also Picholi and Tagetes yield sizeable quantities of oil per unit area under young Poplar trees. The possibilities of intercultivation of poplars with high value shade tolerant annuals/perennials is high, particularly medicinal plants.

Extending the zone of Poplar based agroforestry

Possibilities of extending Poplar

Table 4

Half/full sib seedlings raised and released for direct field screening

Seedling Vintage	Year of field planting	No. of selected seedlings field planted	Location	First field selection year	No. of individuals selected for further trials	Remarks
1	2	3	4	5	6	7
1982	1984	150	Bagwala	1991	18*	Full-sib of G3 x G48
1983	1985	369	Chandian Farm	1988	02	Hal-fsib
1983	1985	869	Chandian Farm	1988	05	Half-sib
1983	1985	100	Chandian Farm	1988	04	Half-sib (Texas)
1983	1985	400	Chandian Farm	1991	38	Half-sib
1984	1986	465	Chandian Farm	1991	03	Half-sib of St-121
1984	1986	174	Chandain Farm	1991	02	Half-sib
1984	1985	100	Chandain Farm	1991	02	Half-sib
1986	1987	4025	Chandain Farm	1988	21**	Half-sib
1987	1989	426	Prag Agril Kichha	1991	16**	Half-sib
1989	1990	15	Chandain Farm	1997	02	Full-sib
1989	1990	406	Chandain Farm	1997	15	Half-sib
1989	1991	32	Bagwala	1997	05	Half-sib
1989	1991	25	Fauzi Matkota	1994	06	Half-sib
1990	1992	25	Bagwala	1997	01	Half-sib
1991	1993	26	Bagwala	1997	01	Half-sib
1995	1997	37	Bagwala to be selected in Dec.2000			Half-sib
1995	1997	3000	Noorpur(PPL) Kichha	1999	21	Half-sib
1996	1998	1500	(Plot No.7&13) Bandia	1999	10	Half-sib
1996	1998	1000	U.P.Alum,Lalpur	To be	To be	Half-sib
1996	1999	2000	Beheri, Bareilly	selected	selected	Half-sib
1997	2000	2500	CRC, Pantnagar	To be	To be	Half-sib
1997	1998	330	CSA, Uni.Kanpur	selected	selected	Half-sib
1997	1998	20	Faizabad			Half-sib
1997	1998	1500	Saharanpur			Half-sib
1997	1998	1000	Ludhiana			Half-sib
1997	1999	1000	Lalwalabagh			Half-sib
1997	1999	2000	Matkhera			Half-sib
1998	2000	150	Gangapur Vill. Rudrapur			Half-sib
1998	2000	600	Vill.Bhurarani, Rudrapur			Half-sib

contd...

1	2	3	4	5	6	7
1998	2000	400	Sitapur District			Half-sib
1998	2000	500	Janta Inter College,Rudrapur			Half-sib
1998	2000	200	Rampur District			Half-sib
1998	2000	100	Gangapur, Rudrapur			Half-sib
1998	2000	500	Eta District			Half-sib
1998	2000	200	Kiratpur, Rudrapur			Half-sib
1999	1000 supplied to CSA Univ. Kanpur for field testing during Feb.2000					

cultivation to areas beyond the present limits of West U.P., Uttaranchal, Haryana and Punjab are immense. A few uncoordinated trials carried out by WIMCO in Gujarat, by Maharashtra Forest Department in Nasik, in Raipur by Agriculture University Raipur (M.P.), in Jabalpur and Chindwara by Tropical Forest Research Institute, Jabalpur indicate possibilities of introducing poplars in some of these regions of India. A lot more research is needed before poplars become as widely acceptable among farmers as they are in U.P., Uttaranchal, Haryana and Punjab today. In my personal opinion poplars have a high probability of success in Nagaland, Mizoram, foothills and plains of Arunachal Pradesh and parts of North Bengal and Bihar if we could identify the right species and clones for these areas.

SUMMARY

Natural forest cover of India is declining and timber imports are draining foreign exchange. This is because productivity aspect of forests has been assigned low priority in our policies. To overcome the problem the only answer is plantation forestry which will help in sustainable timber and forest goods production. Poplars were introduced in agroforestry by M/s WIMCO Seedlings Limited almost two decades back. On account of their higher productivity they are conspicuous over agricultural fields in Indo-gangetic plains. At present about 23,000 ha of agricultural land is annually planted with Poplars. Considering total irrigated land of Western Uttar Pradesh, Haryana and Punjab, little has been covered by Poplars. Apart from generating raw material for industries, Poplars are helpful to improve socio-economic status of farmers and generate employment for rural population, mainly on account of their higher productivity and ready market. To avoid monoculture, maintain vigour of clones and pest resistance, thereby maintenance of productivity, regularly new clones of Poplar are needed, for which, breeding programme is a must. M/s WIMCO Seedlings Limited is actively busy in developing new clones of Poplar. Already 9 clones are registered with International Poplar Commission and another 12 clones which are more productive than G-48 are in pipeline. All these 12 clones are expected to increase per unit area wood yield by 150 per cent. At present M/s WIMCO Seedlings Limited is testing 65 clones under multilocational trial and 347 hybrid/half-sib seedlings are ready for release for multilocational field testing. Apart from them, 11,242 seedlings are under study after second stage screening in nursery for field tests. *Populus* species, which was initially introduced in our country to produce raw material for match industry, has been a gift for veneer industry on account of which large number of plywood units have been established in Northern India. Recently pencil industry has also shown its interest for wood of Poplar and it is expected that compressed wood industry will consume largest portion of Poplar wood in near future.

पोपलर कृषि का संभावना क्षेत्र

जे०पी० चन्द्र

साराशं

भारत का प्राकृतिक वन क्षेत्र घट रहा है तथा बाहर से प्रकाष्ठ का आयात करना उसकी विदेशी मुद्रा को चूसता जा रहा है । ऐसा इसलिए क्योंकि वनों के उत्पादकता पक्ष को हमारी नीतियों में निचली पूर्वता प्रदान की गई है । इस समस्या पर पार पाने का एकमात्र उपाय रोपवन वानिकी ही है जिससे लम्बे समय तक प्रकाष्ठ और वनोजों का उत्पादन करते रहने में सहायता मिलेगी । पोपलर को कृषिवानिकी में मसेर्स विमको लि० लगभग दो दशक पूर्व लेकर आए । अपनी अधिक उत्पादकता के कारण सिन्धु-गांगेय मैदानों की कृषि भूमियों में साफ-साफ लगे हुए दृष्टिगोचर हो जाते हैं । इस समय लगभग 23,000 हेक्टे० कृषि भूमि पर प्रतिवर्ष पोपलर लगाए जाते हैं । पश्चिमी उत्तर प्रदेश, हरयाणा और पंजाब की कुल सिंचित भूमि को देखते हुए पोपलर कम भूमि पर ही लग पाया है । उद्योग के लिए कच्चा माल उत्पादित करने के अलावा पोपलर किसानों का सामजार्थिक स्तर सुधारने में भी सहायक है और ग्रामवासियों को रोजगार मुख्यत: अपनी अधिक उत्पादकता और बने-बनाए बाजार के कारण, उपलब्ध कराता है । एकजाति-संवर्धन से बचने और कृन्तकों की ओजस्विता और नाशिकीट प्रतिरोधिता बनाए रखने और इस तरह उत्पादकता निरन्तर अधिक बनाए रखने के लिए पोपलर के नए-नए कृन्तक मिलते रहना आवश्यक है जिसके लिए प्रजनन कार्यक्रम चलाते रहना अनिवार्य है । मेसर्स विमको सीडलिंग्स लि० पोपलर के नए कृन्तक तैयार करने में सक्रियता से लगी हुई है । फिलहाल, 9 कृन्तक अन्तर्राष्ट्रीय पोपलर आयोग में पंजीकृत किए जा चुके हैं और 12 अन्य कृन्तक, जो जी 48 से भी कहीं ज्यादा उत्पादक है, पंजीकरण प्रक्रिया में लगे हुए हैं । इन 12 कृन्तकों से आशा की जाती है कि इनसे प्रति क्षेत्र-इकाई काष्ठ की प्राप्ति 150% बढ़ जाएगी । इस समय मेसर्स विमको सीडलिंग्स लि० 65 कृन्तकों पर बहुस्थानीय परीक्षण करा रही है और 347 संकर/अधभेय्ये पौधें बहुस्थानीय क्षेत्र-परीक्षणों के लिए निर्गमनार्थ तैयार हैं । इनके अतिरिक्त, रोपणी में दूसरे स्तर की जांच-पड़ताल पूरी कर लिए जाने के बाद क्षेत्र परीक्षण में भेजे जाने के लिए 11242 पौधों का अध्ययन कार्य चल रहा है । यह वृक्ष जाति जो प्रारम्भ में दियासलाई उद्योग को कच्चा माल उपलब्ध कराने के लिए आनीत की गई थी, अब परत (वेनियर) उद्योग के लिए एक उपहार बन चुकी है जिसके फलस्वरूप उत्तरी भारत में बहुत सारी स्तरकाष्ठ इकाइयां स्थापित हो चुकी हैं । पिछले कुछ समय से पेंसिल उद्योग ने भी पोपलर की लकड़ी में रूचि दिखाई है और आशा की जाती है कि संपीड़ित काष्ठ उद्योग भी निकट भविष्य में पोपलर काष्ठ की काफी अधिक मात्रा उपयोग करने लग जाएगा ।

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