

Production Potential, Market fluctuations and Present Status of Exotic Poplar in India

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If we continue to use the forests as at present, there will be no forests left by 2050 causing damage to environment and biodiversity.

- ❖ Forests have very low growing stock (65 m³ per ha) and a mean annual increment is about 0.7 m³ per ha.
- ❖ The condition of forest based industries is not healthy in India.
- ❖ Therefore, promotion of large-scale farm forestry/agroforestry plantations are essential.
- ❖ National Forest Policy (1988) also directed the wood based industrial units to meet their future raw material requirements through developing partnerships with farmers.
- ❖ Some progressive industrial units have promoted farm forestry/agroforestry plantations through:
 - Supply of planting stock
 - Technical extension services
 - Buy-back arrangements
 - With varying degree of success
- ❖ Short rotation tree species having faster growth, multiple uses and wider adaptability are desirable for agroforestry plantations.

Demand and Supply of Wood (in million cu.m.)

Particulars	1985	1996	2001	2006	2010	2020
Wood demand for domestic furniture, agriculture, industries	50	64	73	82	95	153
Output from forests	24	12	12	12	12	12
Output from plantations, (social and farm forestry)		41	47	53	58.5	88.7
Deficit	26	11	14	17	25.7	52.3

The above table suggested the need of plantation forestry

Poplar (*Populus deltoides*)

Poplar (*Populus deltoides*), a native tree of USA introduced in India around 1950, is widely grown in all over northern India as an agroforestry tree because of its desirable characters and multiple uses.

- ❖ *Populus deltoides* is widely grown on a rotation of 6-8 years.
- ❖ A well drained & irrigated, deep and fertile soil is suitable for poplar.
- ❖ One year old bare rooted saplings (4-5 m) are used for transplanting in January-February with a spacing of 8 x 3 m² or 7 x 3.5 m² or 6 x 4 m² or 5 x 4 m².
- ❖ Rows are to be planted in north-south direction to provide maximum sunlight to agricultural crops.
- ❖ G3, G48, L34, S7C15, Uday, Kranti and Bahar are superior clones of poplar. WSL 22, WSL 27, WSL 32, WSL 39, WSL-A26 and WSL-A49 are new clones.
- ❖ Commercial scale plantations of poplar have been expanding since the WIMCO sponsored Farm Forestry Project was launched in 1984.
- ❖ Maximum production potential of poplar plantation : 50 m³/ha/year
- ❖ Average potential of poplar plantation : 30-40 m³/ha/year
- ❖ Deciduous nature of poplar allows agricultural crops to grow under poplar without much adversely affecting yield.
- ❖ Up to first two years, the returns obtained from sugarcane + poplar combination are maximum.

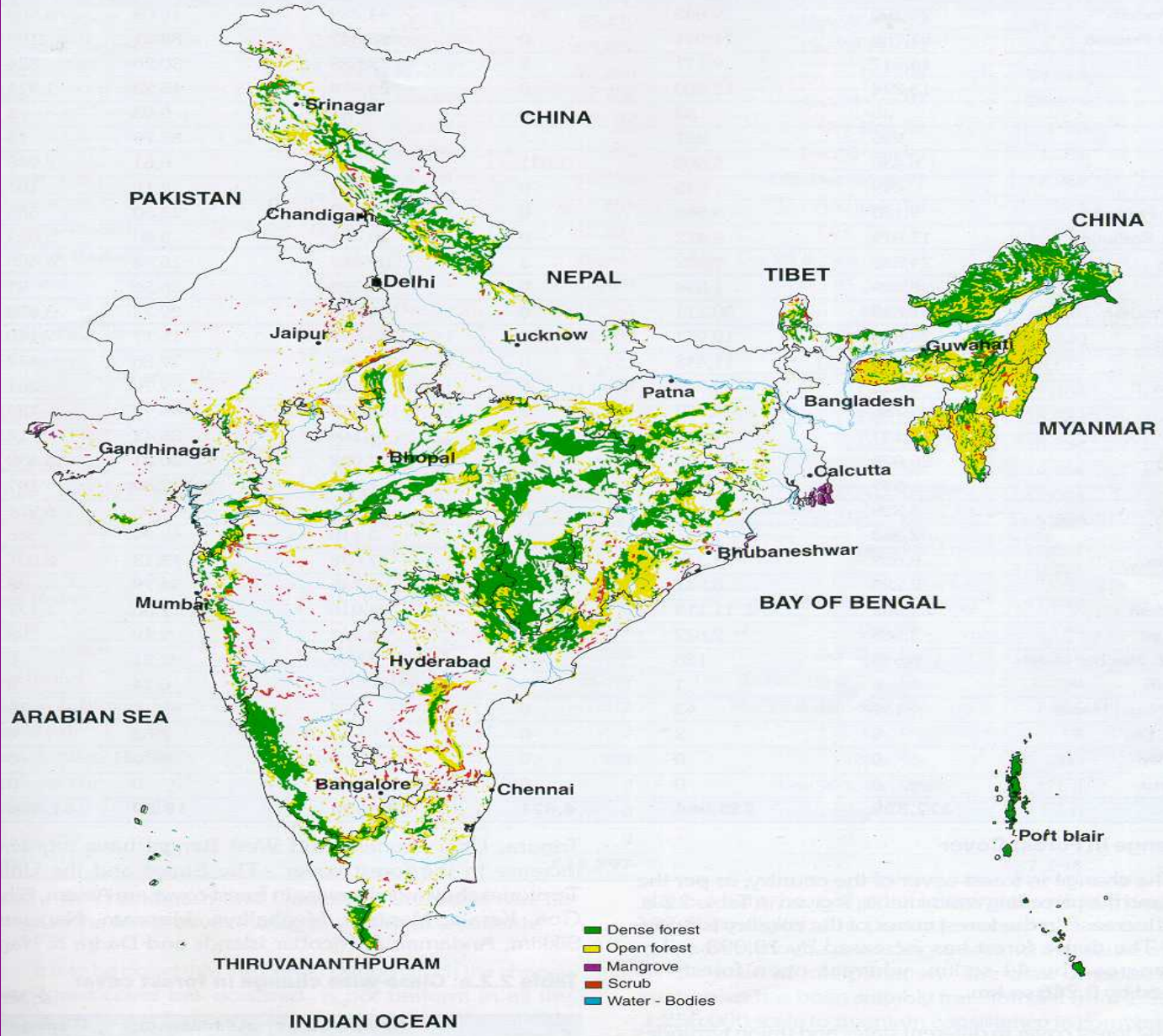


Fig 2.2 : Distribution of Forest Cover in India

Sugar cane with Poplar



Turmeric with Poplar



Fruit trees with Poplar



Turmeric and Fruit trees with Poplar



Wheat with Poplar



- ❖ Third year onwards shade-loving crops like turmeric can be grown successfully.
- ❖ During the winter season wheat and during summer season fodder crops can be grown till its harvest.
- ❖ Poplar replaced *Eucalyptus* (with crash in prices) in nineties due to the following advantages:
 - It has faster biomass growth.
 - It is more compatible with agricultural crops.
 - Its leaves get decomposed and help in maintaining soil nutrients.
 - It was easily saleable and fetches better prices.
 - It is easily propagated through cuttings.
- ❖ But poplar was no more popular among farmers during 2001-2005 because the prices of their produce touching an all time low.
- ❖ Farmers were forced to sell their produce at throwaway prices anywhere between Rs.70 and Rs.155 as compared to Rs.350-550 per quintal.
 - Farmers were compelled for pre-mature felling of poplar.
 - Sale price of 6-8 years old poplar tree with a girth of 1 m was lower down to about Rs.500-600 per tree in 2004.
 - Prior to crash in poplar sale price, 10 million trees were planted annually in 0.02 million hectares of lands with an average density of 400-500 trees per ha.

After investing over six or seven years, farmers see their dreams coming apart.



Market of Poplar wood

Poplar wood has four rates (Rupees per quintal) depending on Girth.

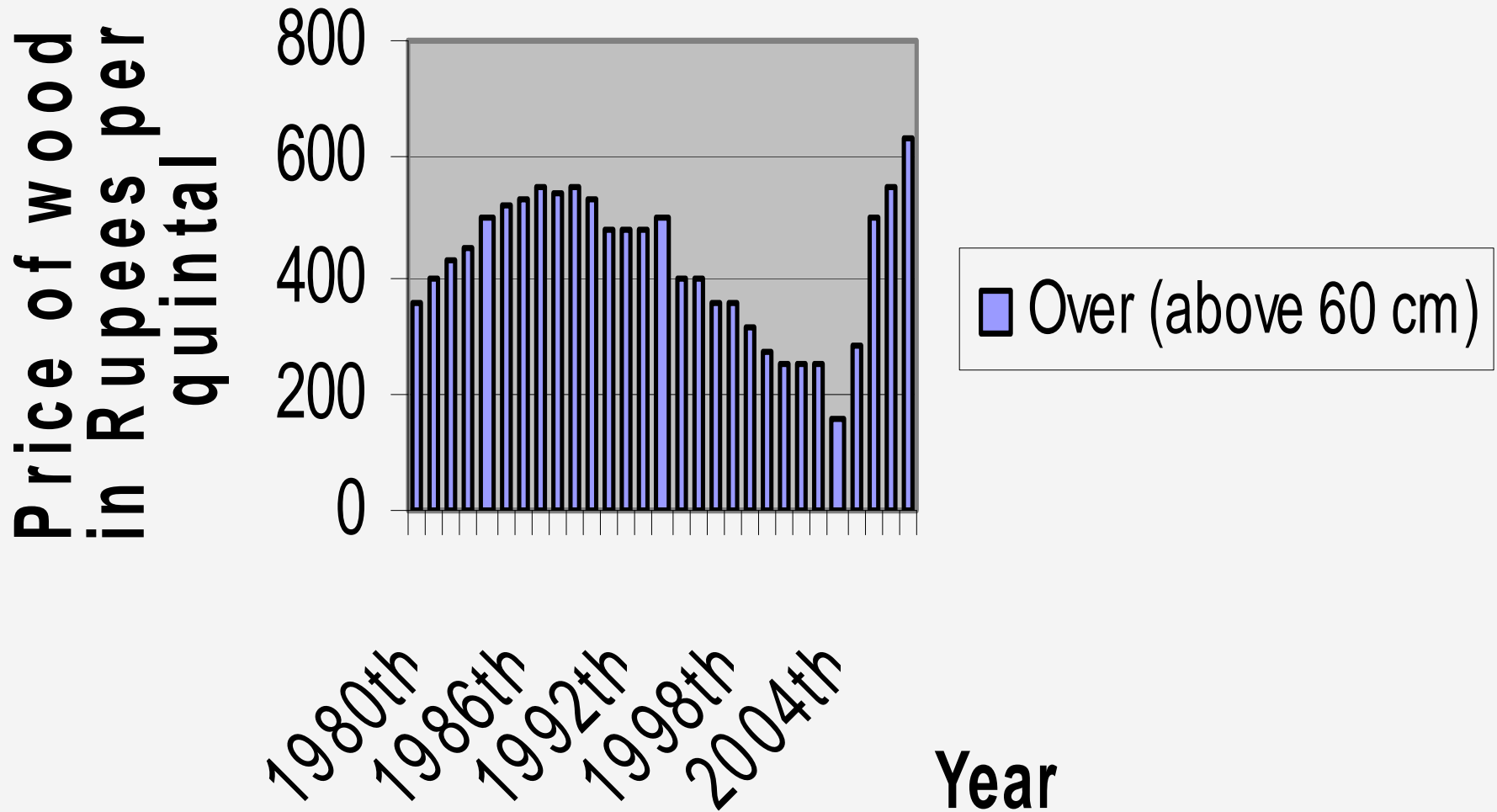
	Over (above 60 cm)	Under (45- 60 cm)	Sokta (30- 45 cm)	Dandi (Below 30 cm)
Average of 29 years	421.2	250.8	186.6	66.1
Lowest (2004)	155	85	70	70
Current year & highest (2008)	630	380	240	145

Average wood biomass of a poplar tree with girth
of 100 cm=700 Kg

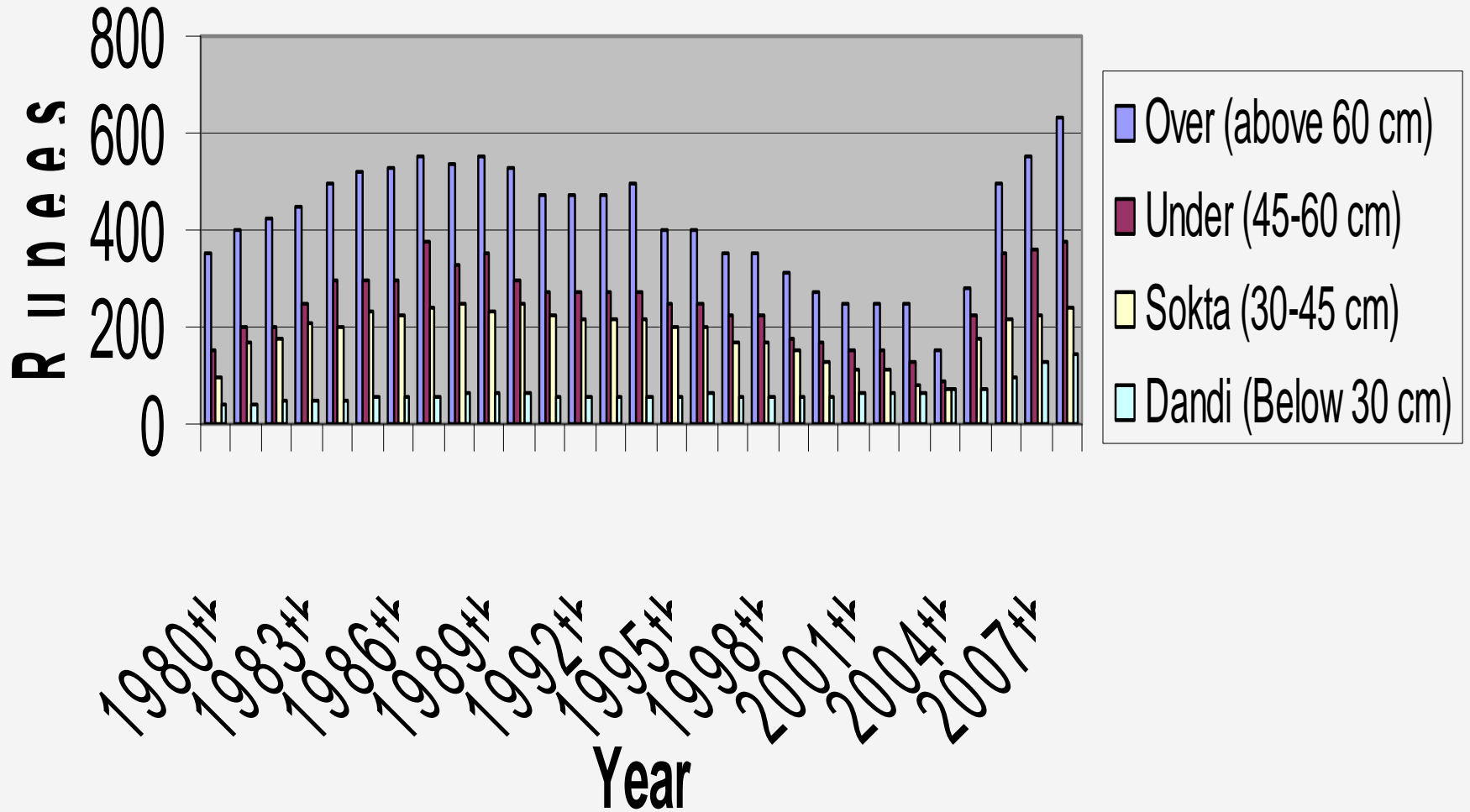
Over (above 60 cm)	Under (45- 60 cm)	Sokta (30-45 cm)	Dandi (Below 30 cm)
45 per cent	18 per cent	12 per cent	25 per cent

Year	Over (above 60 cm)	Under (45-60 cm)	Sokta (30-45 cm)	Dandi (Below 30 cm)
1980	350	150	100	40
1981	400	200	172	40
1982	425	200	180	45
1983	450	250	205	50
1984	500	300	200	50
1985	520	300	230	60
1986	530	300	225	60
1987	550	375	240	60
1988	540	325	250	65
1989	550	350	230	65
1990	525	300	250	65
1991	475	275	225	60
1992	475	275	215	60
1993	475	275	220	60
1994	500	275	220	60
1995	400	250	200	60
1996	400	250	200	65
1997	350	225	170	60
1998	350	225	170	60
1999	310	180	150	60
2000	275	170	125	60
2001	250	150	110	65
2002	250	150	110	65
2003	250	125	80	65
2004	155	85	70	70
2005	280	225	180	75
2006	500	350	220	100
2007	550	360	225	125
2008	630	380	240	145

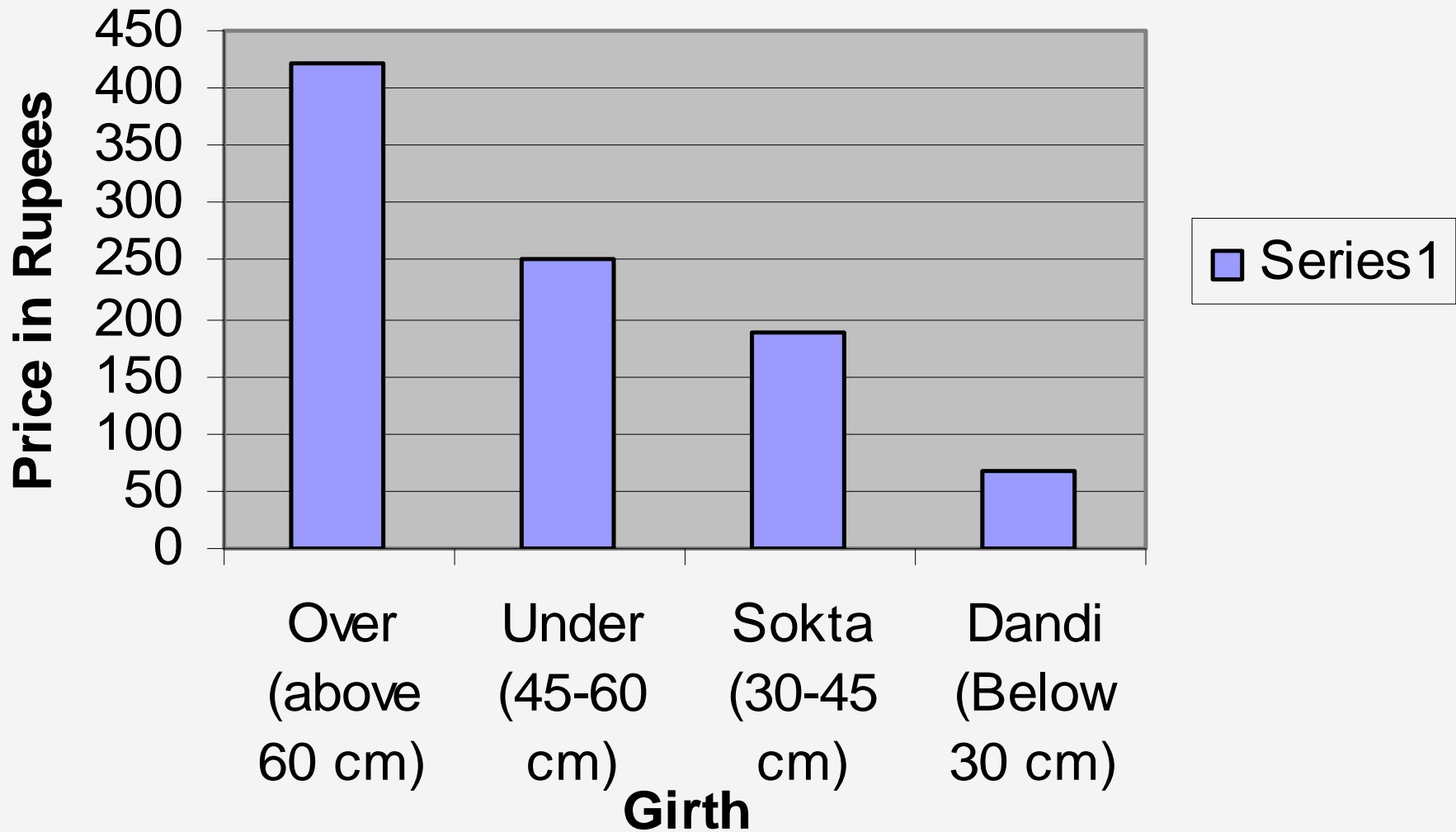
Price of wood (over 60 cm) in Rupees per quintal



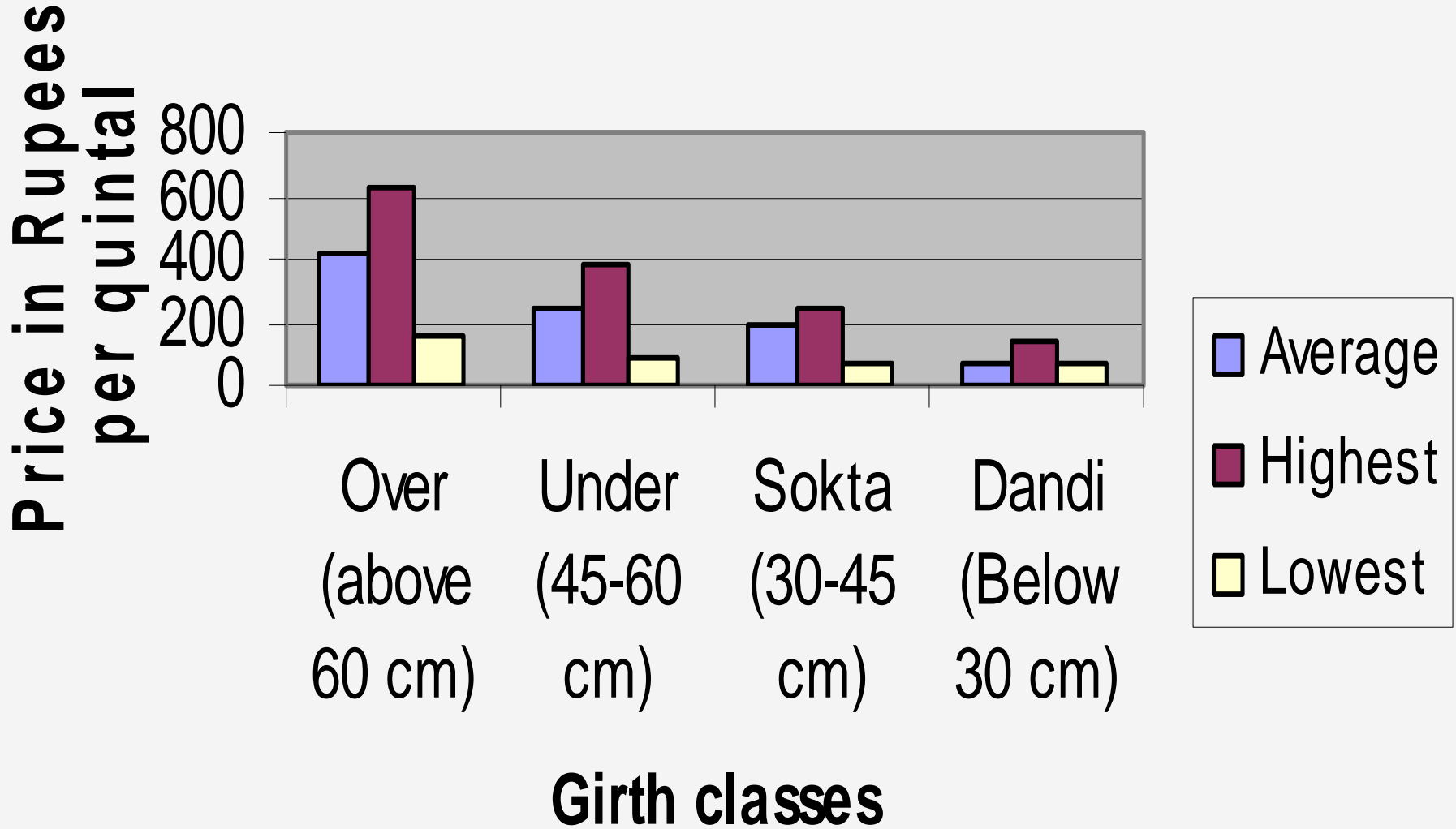
Wood price per quinal



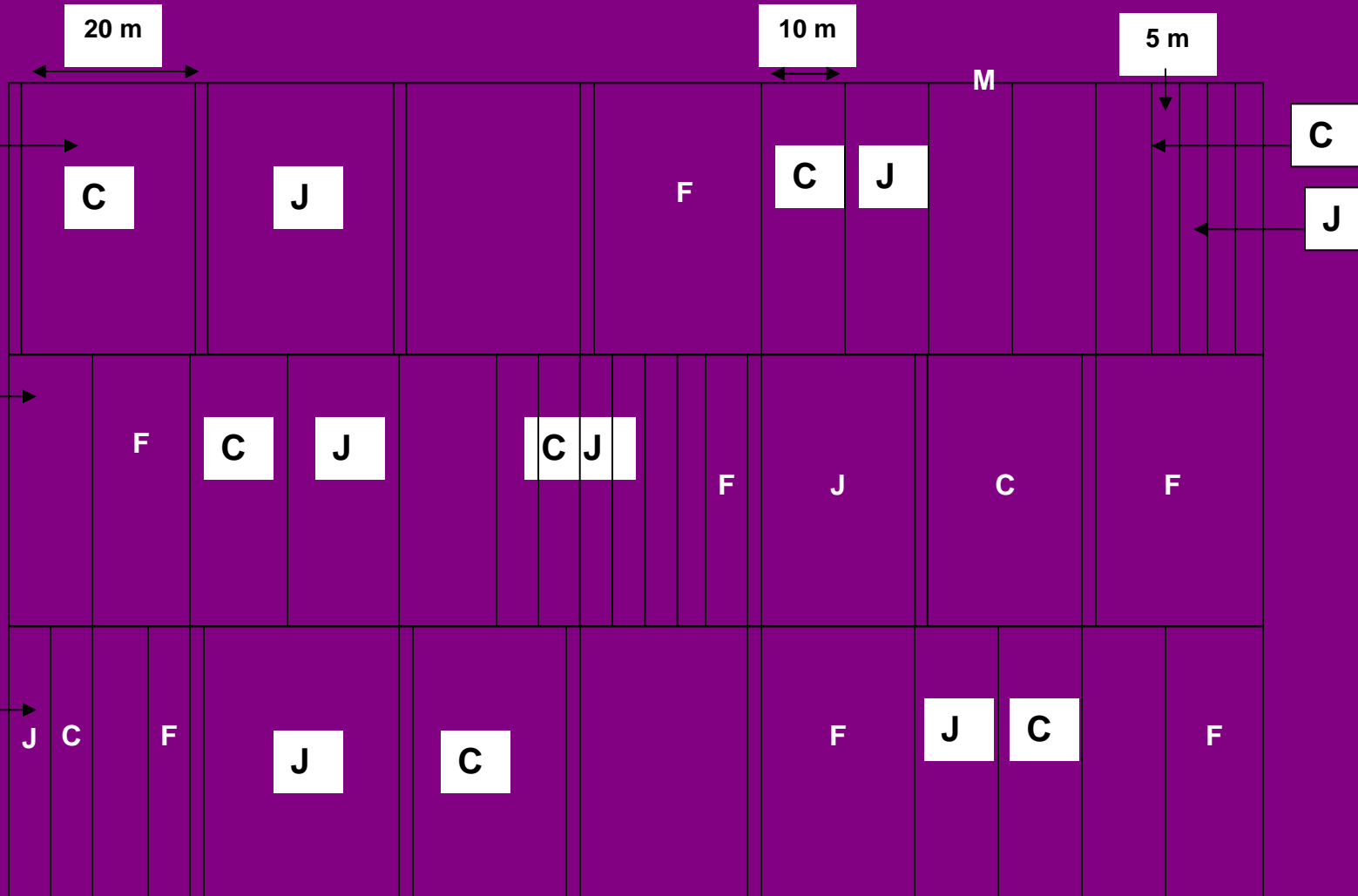
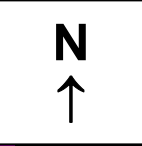
AveragePrice of wood with varying girth



Price of wood in Rupees per quintal



**Poplar plantation at different spacings at Research Farm of
CCS HAU, Hisar
(Plantation: February 2007)**



Present status of Income from Exotic Poplar

- The tree attains a girth of 1 m at breast height (1.37 m) after an average age of 7 years and such a tree fetches **an average of over Rs.2000**. The net income from poplar plantation would be more than **Rs.90, 000 per hectare per year (more than three times in comparison to crops alone)**. The income from crops grown in association with poplar is additional.

Wheat with Poplar



Turmeric and Fruit trees with Poplar



Turmeric with Poplar



Thanks...