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Study on Copppcing Ability of Eucalyptus Tereticornis in Clonal Multiplication Areas

KEYWORDS: Eucalyptus tereticornis, copping ability, Clonal multiplication.

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ABSTRACT *The experiment was conducted at Forest Research Centre, Mulugu, State Silviculturist division, Hyderabad of Andhra Pradesh to know the coppice ability of Eucalyptus tereticornis in intensively managed clonal multiplication area. The result revealed that the lower portion of stump, 12 cm from ground level is having capacity to produce more number of coppice shoots than the upper portion 12 to 24 cm height. So it is concluded that the juvenility of stump cannot lost even it is older than the upper portion.*

Introduction
In the recent period the concept of planting stock improvement plays a vital role in afforestation programmes. To improve the quality of plantation and for short term gains, the mass multiplication of some suitable species through vegetative propagation is important and this has several advantages over the traditional nursery propagation from seed. The vegetative propagation is to (a) fixing superior genotypes (b) uniformity of population (c) facilitating propagation (d) combining more than one genotype into a single plant & (e) short term rotation. (Hartmann and Kester, 1997)

Vegetative propagation of Eucalyptus through rooting of leafy cuttings has an advantage over the seed origin plants. The potential of vegetative propagation in Eucalyptus for improving the yield was realized when Aracurz florestel, a company in Brazil, could increase the yield from 36^3/ Ha/ Year to 64 m^3/ Ha/ Year in E. grandis (Gurmurthi and Ravi, 1996). One Private plantation in Dippakayalapadu in West Godavari district of Andhra Pradesh yields 80 tones of debarked pulpwood/ acre at 4 years age, this is equivalent to nearly 200 tones yield/ ha and the mean annual increment of 50 cum/ ha/ year (Piarelal).

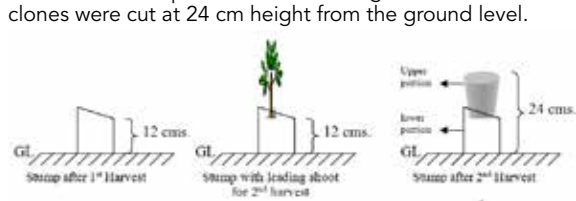
The production of healthy and vigorous coppice shoots from basal portion of the stump at the age of 18 months was concluded from our earlier experiments. The ability of cuttings to form adventitious roots decreased with increasing age of the plants (Hartmann and Kester, 1997). Trials conducted at Asean Canada forest tree seed centre also indicate that felling donar trees high above the ground has a negative effect on coppicing and rooting ability (Pong-Anant, 1989). A good rooting ability of stem cuttings derived from the basal zone has been attributed to an accumulation of natural auxins and other growth promoters (Hartmann and Hanson, 1958). Experiments were conducted by Forest Research Centre, Mulugu, to know the coppicing ability of E. tereticornis in clonal multiplication area in the 2nd Harvest and to know the influence of stump height in producing the coppice shoots.

Materials and Methods
Study Area: The study was carried out at Regional Forest Research Centre, Mulugu State Silviculturist division, Hyderabad of Andhra Pradesh. The area lies in latitude of 17^0 North and 42^0 South, the soils are sandy loam to red soils and vegetation type is dry deciduous miscellaneous scrub forests. The Clonal multiplication Area of 5000 ramets of 10 clones, 6, 27, 10, 7, 52, 71, 1, 8, 4, & 3 of ITC Bhadrachalam was established with an espacement of 1M X 1M during 1996 February in 0.5 ha. area. The area was cleared, ripped and leveled before the planting the clonal multiplication area was intensively managed by giving regular watering, soil workings and weeding.

The 1st Harvest of clonal multiplication areas was undertaken in the month of August, 1997 at the age of 18 months and this result was concluded from the earlier experiments conducted in our centre. The slant cut was made 12 cm height above the ground level and the stumps were treated with 1 gm copper carbonate and 1 gm red led in blue copper mixed with talc to avoid fungal infection to the stumps. The matured coppice shoots were collected 8 times continuously from the stump by giving a gap of 45 days between to collections. One healthy leading shoot was left out after 8th time collection of coppice shoots.

The Clonal multiplication area of left out leading shoot was regularly maintained by giving watering, soil workings, weeding and fertilizer and pesticide application as and when required. The clonal multiplication area attains the 18 months age during February 2000.

The clonal Multiplication Area having 5000 ramets of 10 clones were cut at 24 cm height from the ground level.



The stumps were treated with 1 gm. copper carbonate and 1gm red led in blue copper mixed with talc. The sprouting was observed after 7-10 days, it is interesting to note that the sprouting was observed more in the lower portion if the stump (below 12 cm) than the upper portion 12 to 24 cm portion. The percentage of sprouting differs from one clone to another. The data was collected periodically from all the ramets of each clone. The coppice shoots attains the maturity after 45 days, spraying the coppice shoots with dithane-M45 solution 4 times during the growth period of coppice shoots. The coppice shoots were made into 6 to 8cm. two nodal leafy cuttings with slant cut at the top and bottom. The leaves were trimmed to half to reduce the transpiration loss. The cutting were treated with RIDOMIL fungicide 2.5 gm/l for 2 minutes to avoid fungal infections in the propagating units the cuttings were treated with Indole-3-Butyric Acid 4000 ppm by quick dip method and placed in the 100 cc root trainer filled with vermiculite the propagating units were maintained by giving regular misting and the temperature between 35 to 38^0C, relative humidity 70 to 80 percent were maintained. The root initiation was observed after 10th day and completed root formation after 40 to 45 days. The rooted cuttings were shifted from propagating units to the lathe house for further hardening.

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Result and Discussion

The production of coppice shoots in the lower portion is more than the upper portion. The following data indicates that the lower portion of stump is having enough vigour to produce more no. of coppice shoots even though it is older than the upper portion.

Table No.1:

S. No.	Clone No.	No. of ramets	No. of coppice shoots in upper portion (12 to 24 cms.)	No. of coppice shoots in lower portion (below 12 cms.)
1	6	500	5947	12149
2	27	500	7577	13714
3	10	500	2154	5952
4	7	500	5331	3522
5	52	500	5678	10783
6	71	500	4737	5039
7	1	500	3354	1852
8	8	500	5863	2570
9	4	500	4050	1992
10	3	500	3254	3987

The data presented in the table 1 reveals that in clone no. 6, 27, 10, 52, 71, and 3 the coppice shoots production was more in the lower portion than the upper portion. In clone no.7, 1, 8, and 4 the upper portion produced more than the lower one but the difference is very less. The production of coppice shoots may depends upon environmental and site suitability to the particular clone.

Therefore based in the above result it is concluded that the vigour of the lower portion in producing coppice shoots is good than the upper portion, so one ramet we can produce more no. of superior quality planting stock. This may certainly fulfill the needs of afforestation programmes as well as for short term gains.

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