

Short Communication

Tillage Practices for Tree Establishment in Arid Region

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Low and erratic rainfall in arid region coupled with poor edaphic conditions such as shallow and often compacted sandy infertile soils, results in sub-optimal supply of moisture, nutrients and aeration which cause very slow growth of plants particularly in the first year of their establishment. To impart better growth to young plantations, soil conditions need to be optimised by adopting suitable soil working practices, moisture conservation practices and by choosing proper time of planting. Information on these aspects pertaining to trees of arid and semi arid regions is inadequate (Ghosh 1977, Bhimaya *et al.* 1963, Gupta & Muthana 1986, Gupta 1990). Therefore, to find out the proper time of planting and suitability of soil working and moisture conservation practices and their influence on initial development of plantations, the present study was undertaken on *Prosopis cineraria*, *Tecomella undulata* and *Azadirachta indica*. The plant growth data taken during the first year of their establishment are presented and discussed.

A field experiment was conducted in the year 1990-91 at the research farm of the Arid Forest Research Institute, Jodhpur. The soil of the experimental site is loamy sand underlain with calcium carbonate concretion at 75 to 90 cm depth. Soil pH is 8.1. Moisture retention at -0.1 bar is 10.3% and at -15 bar 3.0%. Average annual rainfall of the region is 350 mm. However, rainfall in the experimental period was 810 mm. Various treatments as in Table 1 were in main blocks and three tree species were in sub-main blocks. Each treatment was replicated thrice. The experiment was laid in split plot design. Each plot had 16 plants at 3m x 2m spacing. After imposing the soil working treatments, four month old seedlings of *A. indica* (Neem), *T. undulata* (Rohida) and *P. cineraria* (Khejri) were planted on July 19, 1990; except in T₆ and T₇ treatments, where the same seedlings were

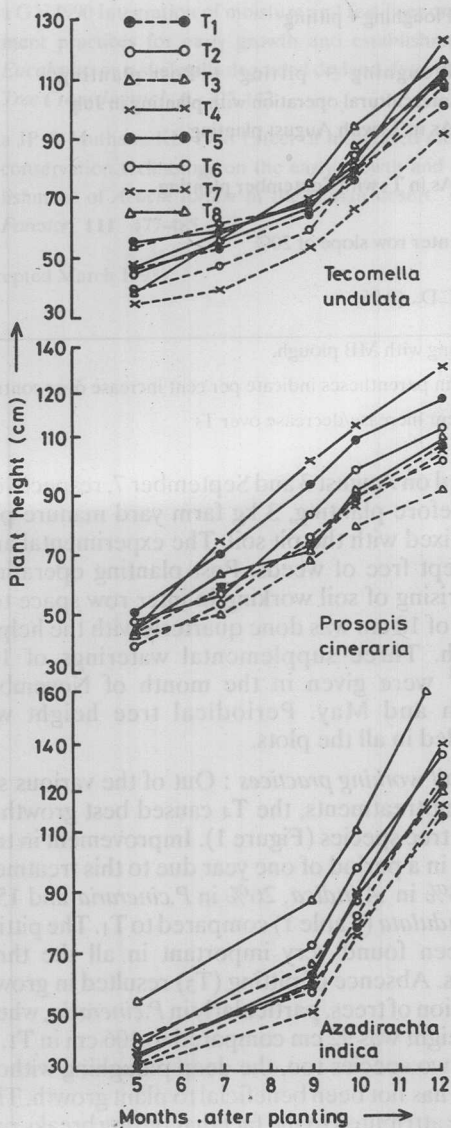


Fig 1 Influence of different tillage practices and planting dates on periodical growth of trees