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Sustaining Sheep and Goats Productivity in Arid Ecosystem Though Ailanthus Excelsa

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Ardu (*Ailanthus excelsa)* also known as 'Tree of Heaven' and it is an important member of family Simaroubaceae. It can be found throughout the tropical and sub tropical parts of the country. It thrives well in the arid, semi-arid and semi-moist regions but generally absent or not found in the flood prone regions, river basins and heavy rainfall regions. The tree is found extensively cultivated in many parts of India *viz.* dry tracts of Gujarat, Rajasthan, Haryana, Punjab, Uttar Pradesh, Bihar, Orissa and the Deccan plateau. *Ardu* is also figures in the list of important fodder trees with multiple uses. It can be utilized as leaf fodder, mulch, timber, fuelwood, charcol and in human and animal medicine. The timber of the tree can be used in preparing box-plank for use in packing, fishing floats, sword handles, spear sheet, toys, drum, match wood etc. The tree has been exploited widely for treatment of many diseases and disorders in human and in animals. The bark and the leaf extract of the tree is used as anthelmintic, febrifuge, expectorant and anti-spasmodic and also against asthma, bronchitis and dysentry. *Ardu* is very fast growing tree especially under farm forestry condition and may attain a height and girth of 6.5 m and 66 cm, respectively in first five years. The following points may be considered for the successful cultivation of *ardu* tree.

Climate: It is suitable tree species for planting in dry areas with annual rainfall of 400 mm. It avoids moist areaswith high monsoon rainfall. It is strong light demander and seedling are susceptible to frost.

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Soil: It grows on a wide variety of soils but thrive best on porous sandy loam soil. It avoids clay soils with poor drainage and water logging area. For its cultivation, light porous soil is preffered and stiff clay soil is avoided beacause poor drainage is harmful to young seedlings.

Propagation: Ripe fruits are plucked and collected in May-June before these are blown off by wind. Fruits are dried in the sun, beaten and winnowed to separate the seeds. The seed loses viability quickly and can not be stored for use the next year. Natural reproduction takes place through seed and coppice; seed ling regenation is generally scanty and can not be relied upon to regenrate its natural stand. Planting of entire plant isbetter than either direct sowing or stump planting.

Nursery rising: The seed is sown in well prepared nursery beds. The seeds are very small and are mixed with ash or well pulverized soil to ensure even sowing. The depth of the sowing should not be more than 5 mm. Germination is commence in about 10-12 days of sowing and its completion may take 50 days. Planting is done during monsoon rains. Entire plant with balls of earth are uprooted from nursery in the morning and preferably planted out the same day.

Ardu in Agroforestry

Ardu is recognized to be very well suited for used under fast rotation of agroforestry, social forestry, industrial plantation and wasteland afforestation due to following reasons-

- It is indigenous fast growing tree species that gives early economic returns.
- The leaves are rated as highly palatable and nutritious fodder for sheep and goats.
- It is generally planted with wide spaces, thus provide enough space for growing crops.
- It can be grown in agricultural fields in association with many agricultural crops.
- It also protect and even improve the underneath soil.
- Nursery and planation technology for *ardu* have well standardized.
- It is an industrial tree since it produces raw material for various agro based industries.

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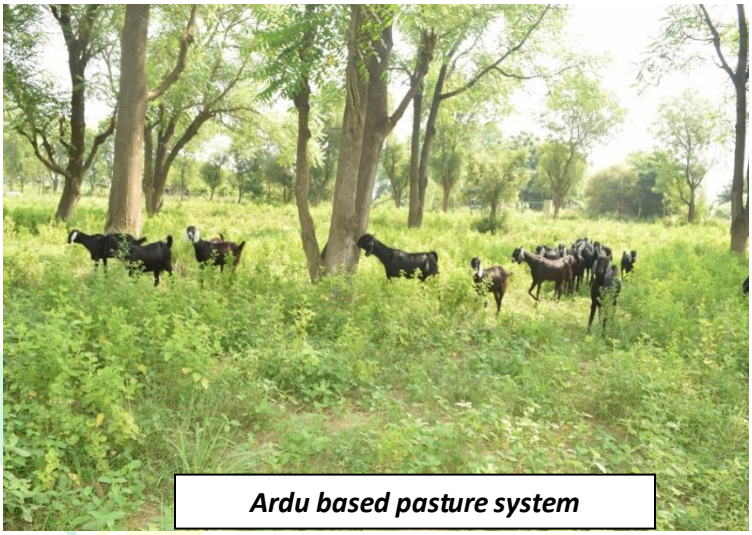
Fodder Value: It is relatively a fast growing tree. An average full grown tree yields about 5-7 quintals of of green leaves lopped twice a year in the month of November-December and May-June (Mann and Sharma, 2001). Leaf fodder from *ardu* is an important fodder with high palatibility and nutritious for sheep and goats. In arid ecosystem sheep and goats are essentially dependent on pastures and also it is the cheapest source of feeding but it may not provide a perfect diet for thses animals especially during extreme climate. Pastures of perennial fodder trees *viz. Ardu* produce feed more quickly and provide feeding even during drought condtion also. *Ardu* leaves are rated as higly palatable and protein rich nutritious fodder for sheep and goats and belived to augument milk production. In green leaves of a*rdu* crude protein varies 16.25-19.87%, ether extract, 3-3.96%, crude fiber 12.82-21.85%, N-free extract 41.43-19.96% calcium 1.48-2.42%. Although, nutritve value of leaves may vary with age and stage of plant, season, lopping or pollarding (Jat *et al.*, 2011).



Ardu based pasture system