IDENTIFICATION OF TREE SPECIES SUITABLE FOR TIMBER, FUELWOOD AND FODDER

Objectives:
1. __________________________________________________________________________
2. __________________________________________________________________________
3. __________________________________________________________________________

(A) Timber wood species

1. Teak (Tectona grandis)

Vernacular names: Hindi – Sagun or Sagwan, Telugu – Teku.

Family: Verbinaceae

Teak is a very valuable tree and it is called as king of timbers. In Greek Tectona means “Carpenter” and grandis means “Large size”. It is a deciduous tree that grows in all parts of the country.

Morphological description: The branches are four sided at the young age and covered with hairs. Young trees have a large sized (40-60 cm long and 20-30 cm broad) leaves like hand winnowers. Leaves are simple rough, ovate and pointed at the tip. Flowers are small white colored but emerge in large, open clusters from the tips of branches. The fruit is hard bony nut enclosed in thick sponges. Seeds are very small and have a strong dormancy.

Leaf  Flower  Fruit

Economic importance: It is extensively used for house building, bridge constructions and for making poles, beams, roofs, doors, window frames, railway sleepers etc., and also for furniture. Leaves are used for thatching houses in tribal areas.
2. Rose wood (*Dalbergia latifolia*)


*Family:* Leguminosae.

This elegant tree is deciduous and a warm loving and grown luxuriously in moist soils. Rose wood grows on a wide range of soils from gravel to loamy soils. But thrives best in well-drained, deep, moist loamy soils.

*Morphological description:* Leaf contains 3-7 leaflets and they are elliptical obtuse, sometimes emerginate. The flowers are white and very small, axillary. Fruit is flattish, oblong pod and also lancelolate. Immature pods are light green and mature are brown in colour and indehiscent.

*Economic importance:*

The wood is very heavy and stronger than that of teak. It is used for cabinet and furniture making. Rose wood is a valuable timber for carving, veneers and plywood boards. Leaves are nutritious and a good fodder for cattle and goats.

3. Sissoo (*Dalbergia sissoo*)

*Vernacular names:* Hindi – Shisham, Telugu – Errasissu.

*Family:* Leguminosae

The sissoo is a native of tropical India. It is also a large deciduous tree and grown in wide range of soils.

*Morphological description:* The leaf contains 3-5 leaflets and leaves are broadly elliptic or ovate and acuminate. The flowers are yellowish, white, and axillary nearly sessile. Fruit is a pod which is flattish linear and lanceolate. Immature pods are light green and mature pods are brown and indehiscent.
**Economic importance:** The timber is heavy and used for high-class furniture. It is extensively used for cabinet wood, railway sleepers, musical instruments, lorry bodies etc. and also used for house construction. The wood gives good quality paper pulp. The green leaves and pods can also be used as cattle feed and the dried branches are considered as excellent firewood.

4. **Sal (Shorea robusta)**

*Vernacular names:* Hindi – Sal, Telugu – Guggilam or gugal.

*Family:* Dipterocarpaceae

The tree is large and mostly found in deciduous forests. Sal grows on a wide range of soils but attains maximum size on deep, well drained and moist soils. Both the hilly tracts and plains are equally suitable for its growth.

*Morphological description:* Leaves are glabrous when fully grown and broad – ovate, more or less acuminate ending in a obtuse point. Flowers are yellowish on short pedicels arranged in large compound axillary and terminal panicles. Fruits are obtuse, oblong or spathulate.

![Image of Sal tree](image)

5. **Sain (Terminalia tomentosa)**

*Vernacular names:* Hindi – Sain, Telugu – Nallamaddi.

*Family:* Combretaceae.

It is a large, evergreen tree and has a broad crown and trunk tall with rough bark. It is grown in wide range of soils.

*Morphological description:* Leaves are hard, elliptic or ovate arranged opposite. The upper most leaves often alternate. 1 or 2 glands appear on back of the leaf near base of the midrib and under side is soft tomentose rarely glabrous. Branchlets are covered with short rust coloured pubescence. Flowers are dull yellowish colour in erect terminal panicles. Fruit is woody, winged with 5 brown wings.
Economic importance: It is strong and moderately heavy wood. Wood is used for house construction, beams, agricultural implements, boat building etc. Bark is used for tanning the hides.

6. Arjun (Terminalia arjuna)

Vernacular names: Hindi – Arjuna, Telugu – Tellamaddi or yerramaddi.

Family: Combretaceae

Arjun is a beautiful and evergreen tree. The trunk is buttressed. The tree has a broad crown and branchlets are droopy with smooth bark. The tree is found in tropical moist deciduous and dry deciduous forests of India.

Morphological description: Leaves are thick and oblong or obovate. Flowers are dull yellowish colour in erect terminal panicles. Branchlets are droopy with smooth bark. Fruit is long woody structure with wings.

Economic importance: The wood is strong and moderately heavy. Wood is used for making agricultural implements, boat building, carts etc. and suitable for plywood manufacture. It is also used for building houses, electric poles etc. Bark is used for tanning the hides. The foliage is also a good fodder for cattle.

7. Silver Oak (Grevillea robusta)

Family: Proteaceae

It is a large tree with young shoots, rusty tomentose.
Morphological description: Leaves are pinnate and long deeply pinnatifid so that the leaves are almost bipinnate and sometimes tri-pinnate. Flowers are orange coloured axillary. Fruit is an oblique coriaceous and dehisive.

Leaf          Flower          Seed pod          Tree

Economic importance: Wood is used for small timber and manufacture of packing boxes and matchsticks. It is used as shade trees for tea and coffee plantations.

8. Axle wood (Anogeissus latifolia)

Vernacular names: Hindi – Dhawa, Telugu – yellamaddi or chirimanu.

Family: Combretaceae

Axle wood is very common in the Himalayan foothills. It is moderate to large sized deciduous tree. The trees are also found in deciduous forests of Madhya Pradesh, Maharashtra, Tamilnadu and Andhra Pradesh.

Morphological description: Leaves are elliptic, ovate or obovate, lanceolate and arranged in alternate manner. Branches are drooping and flowers are small with globose head, borne in short axillary racemes. Fruit is a dry drupe, compressed, 2 winged.

Leaf and Flowers

Economic importance: Wood is used for making poles, house posts, plough handles etc. It is also used extensively for construction and furniture making.

9. Red sanders (Pterocarpus santalinus)

Vernacular names: Hindi – Lalchandan, Telugu – Yerrachandanam and rakthagandam.

Family: Santalaceae
Red sanders are the most valuable species growing in dry deciduous forests of peninsular India. The tree attains moderate height and well branched.

**Morphological description:** Leaves are compound and leaflets are nearly circular in shape. Flowers are yellow and were in bundles. Fruits are flat with a slight curve.

![Branch with leaf, flowers and pod](image)

**Economic importance:** The wood is very hardy and highly priced for house posts, poles, picture frames, boxes, agricultural implements etc. Heartwood is used for making musical instruments.

10. **Gumhar (Gmelina arborea)**

**Vernacular names:** Hindi – Gumhar, Sewan, Telugu – Gumarteku, Gummadi, Teku.

**Family:** Verbinaceae

*Gmelina arborea* is distributed generally throughout India except the very dry regions of Rajasthan and Gujarat. It is fast growing tree.

**Morphological characters:** Leaves fall in January and February and are large in size, acuminate. The panicles of flowers appear in February. Fruits are succulent ovoid or oblong drupe with leathery shining pericarp, sweetish pulp and hard long stone.

![Leaf](image) ![Flower](image) ![Fruit](image)

**Economic importance:** It is a good timber tree species and hardy. The leaves are also used as good fodder.
(B) Fuelwood species

1. Siris (*Albizia lebbek*)


*Family*: Leguminosae

Siris is a medium to large sized deciduous tree.

*Morphological description*: Leaves divided into several leaflets and are obliquely oblong, obtuse and reticulate. Flowers are greenish white colour with jasmine like fragrance, terminal. Fruit is a flattish thin pod, straw coloured when matured and dehiscent. Fruit remain conspicuous to the tree even after leaf fall.

*Economic importance*: The wood is hard and durable and used for making agricultural implements, carts and also furniture.

2. Kassod (*Cassia siamea*)


*Family*: Leguminosae

It is middle sized, sometimes grown as large tree. It is not browsed by the animals and suitable for wasteland afforestation. It is a native of South East Asia and was introduced in India as an avenue tree.

*Morphological description*: Leaves are in pairs of leaflets, elliptic, oblong, flowers are yellow coloured, arranged in large terminal panicle, racemes often corymbose. Fruit is cylindrical pod indehiscent, clusters hanging at the end of branches.
Economic importance: Wood makes excellent fuelwood. The heartwood is used as timber for cabinet making and also used for shelves, walking sticks etc.

3. Akashmoni (*Acacia auriculiformis*)

*Family:* Leguminosae (Mimosoideae)

It is a small medium sized evergreen tree. This species is a native of North Australia and was introduced in India as avenue tree.

*Morphological description:* Leaves are phyllode type and leaf stock is modified into a flattened blade. Flowers are white to yellow coloured, tiny and fragrant terminal. Fruit is a wide pod, flat, hard and almost woody.
**Economic importance:** The wood is well suited for fuelwood. This tree is widely planted as an ornamental and shade tree owing to its dense evergreen foliage.

4. **Babul (Acacia nilotica. Syn: Acacia arabica)**

**Vernacular names:** Hindi – Babul, Telugu – Nalla tumma.

**Family:** Leguminosae (Mimosoideae)

It is a moderate sized, spiny and evergreen tree. It is indigenous to India and Pakistan.

**Morphological description:** Leaves are pinnate and leaflets are small. Flowers are golden yellow coloured in globose heads in axils and fruit is a solitary and monoliform pod with whitish tomentose, indehiscent.

![Twig with flowers](image1)
![Pods](image2)

**Economic importance:** It is used as fuelwood and makes excellent quality of charcoal. It is also used as small timber for agricultural implements etc.

5. **Mesquite bean (Prosopis juliflora)**

**Vernacular names:** Hindi – Vilayati kikar, Telugu – Sarcar tumma.

**Family:** Leguminosae (Mimosoideae)

It is a thorny deciduous tree or bush sometimes semi-evergreen. This species is a native of Central America and Northern South America distributed in arid parts of the world, widely propagated in India.

**Morphological description:** Leaves are dark green, bipinnate and leaflets opposite. Flowers are creamy white in colour in axiles and sweet fragrant. Fruit is a succulent pod and seeds are flattened.
Economic importance: It is used as fuelwood and makes super quality charcoal. It is also used for fence posts. Pods are used for cattle feed.

(C) Fodder species

1. Subabul: *(Leucaena leucocephala)*

*Vernacular names:* Hindi – Subabul, Telugu – Khari, English – Horse Tamarind.

*Family:* Leguminaseae (Mimosoideae)

It is a large tree and evergreen and it is very hardy species grown in wide range of soils. There are 13 species of the genus *Leucaena* and the most common species is *Leucaena leucocephala*. These are native trees of America.

*Morphological description:* Leaves are feathery, pinnate with 10 -15 pairs of leaflets. Flowers are small, white in dense globose heads. Fruit is a flat pod appearing in bunches. Mature pods are brown and shining.

Economic importance: Leaves, pods and seeds are nutritious and digestible and relished by cattle, sheep and goat. Wood is medium hard and it works well for carpentry. It is also used as fuelwood.

2. Sesbania *(Sesbania grandiflora)*

*Vernacular names:* Hindi – Agasti, Telugu – Avisa.

*Family:* Leguminosae (Papilionoideae)
It is small to medium sized tree. It has straight cylindrical and deeply furrowed bole and a light spreading crown.

**Morphological description:** Leaves are feathery, paripinnate with 10-30 pairs of leaflets and oblong. Flowers are pink coloured, large and profuse. Fruit is a long pod containing about 40 seeds.

**Economic importance:** Leaves and pods are palatable fodder. It is also best used for green manuring and fuelwood.

3. **Khejri (Prosopis cineraria)**

**Vernacular names:** Hindi- Khajra, Telugu – Jammi.

**Family:** Leguminosae (Mimosoideae)

The Khejri is the prominent thorny tree of dry regions of India. It is a small to medium sized tree with much branched and dark green foliage.

**Morphological description:** Leaves are bipinnate with 7-10 pairs of leaflets arranged and opposite. Flowers are yellow or creamy white coloured. Fruit is a cylindrical pod globose with 10-15 seeds.

**Economic importance:** Leaves and pods are used as fodder. The wood is hard but not durable and hence used as fuelwood.
4. Maharukh (*Ailanthus excelsa*)

**Vernacular names:** Hindi – Maharukh, Telugu – Peddamanu.

**Family:** Simarubiaceae

*Ailanthus excelsa* is a native of Indian Peninsula and grows almost throughout tropical and subtropical parts of country. It grows on a wide variety of soils. It is a deciduous tree.

**Morphological description:** Leaves are broadly sickle with 8-14 pairs of leaflets arranged nearly opposite. Flowers are yellowish, small in size and arranged in panicles. Fruit is a red, one seeded samara and winged.

**Economic importance:** The leaves are rated as highly palatable and nutritious fodder for sheep and goats.