

**LEC .21            WOOD APPLE AND BAELE - SOIL, CLIMATE, PLANTING,  
VARIETIES, NUTRIENT AND WATER MANAGEMENT, SPECIAL  
CULTURAL OPERATIONS, PHYSIOLOGICAL DISORDERS,  
PESTS AND DISEASES, MANAGEMENT PRACTICES**

**WOOD APPLE**

***Feronia limonia* L.**

**Family: Rutaceae**

Wood apple, a native of India and Sri Lanka is one of the hardy trees of arid and semi arid regions. The fruit is a hard-shelled many seeded berry with its pinkish brown aromatic sour-sweet pulp being the edible portion the seeds embedded in it. The pulp contains 18.1% carbohydrate, 7.1% protein, 3.7% fat, 5.0% fibre and 1.9% mineral matter. The pulp is a rich source of calcium (130 mg/100g), phosphorus (110mg/100g) and iron (0.48 mg/100g). the vitamins supplied by one hundred gram of pulp are carotene 61 µg, riboflavin 0.17 mg, niacin 0.8 mg, thiamine 0.04 mg and vitamin C 3 mg. the ripe fruit pulp makes excellent chutney and it is also consumed afresh along with sugar. It is used as an adjunct in jelly preparation along with the pulp of guava.

**Climatic and soil requirements:**

Wood apple can be grown in dry tracts of tropical and sub-tropical regions right from sea level, upto 1400 m above MSL. It is adapted to a wide range of soil conditions including degraded soil. It can also tolerate salinity to certain extent. It is an ideal tree to be exploited for growing in wasteland.

**Cultivars and propagation:**

No named cultivars are available. However sour and sweet types, high yielders with big fruit size exist in the variable seedling progenies in nature. High yielders with big sized and sweet tasting fruits should be selected for propagation through vegetative means. At present though seed propagation is done mainly, budding has been reported to be successful if done during late summer and early monsoon. Budded plants are dwarf and precocious in bearing. In

dry regions where irrigation potential is limited. The seedlings can be planted in the field and *in situ* budding has to be done on established seedling.

### **Field preparation and planting:**

Normally wood apple is not planted in fertile or rich soils. In wasteland, if mass planting is to be done, then pit lines are drawn across the slope and pits can be dug at a spacing of 8Mx8M each pit with a size of 1 Mx1Mx1M. Planting should be done at the onset of monsoon after filling the pit with 20 kg FYM, sand and top soil. The basins should be formed immediately after planting in such a way that water harvesting is facilitated.

### **Interculture:**

Training is done by Central leader method allowing well spaced branches in all directions. Intercrops can be taken during rainy seasons for the first 5 years. In the post monsoon season, the basins can be mulched with dry leaves. Every year 25 kg of FYM is to be applied for each tree at the beginning of the monsoon rains. This will help in increasing fruit- size and quality. During early stages of crop growth, if pot watering is done during summer it will be beneficial. Being a member of citrus family it is attacked by the leaf-eating caterpillar of citrus which completely defoliate the plant. Spraying of any contact insecticide should be done after hand picking and destruction of larvae.

### **Harvest and yield:**

Budded plants come to bearing 3-4 years after planting. But to reach optimum productivity it will take about 10 years. The crop flowers in February to May depending on the climatic conditions of a locality and fruits will be available from July to December depending on the flowering month. A well grown tree will give 200-250 fruits/year.

### **BAEL**

**Aegle marmelos Corr.**

**Family : Rutaceae**

Beal, one of the oldest fruits cultivated in India has a mythological significance viz., a sacred tree whose leaves are used for worship of Lord Shiva. The fruit pulp which is carbohydrate. One hundred gram of pulp contains 55 µg of carotene, 0.13 mg thiamine, 1.19 mg riboflavin, 1.1 mg niacin and 8 mg vitamin C. from its pulp sherbet and syrup can be made. The marmalade prepared from its fruits is used in curing diarrhea and dysentery. From the stem, gum is obtained. The wood is used for making agricultural implements. The leaves are used as fodder. All parts of the plant are medicinally important due to a substance called 'marmelosin'.

**Climatic and soil requirements:**

A subtropical condition with hot dry summer and mild winter would be ideal for the cultivation of bael. It can be grown even upto an altitude of 1200 M MSL and it is not damaged by temperature even as low as  $-7^{\circ}$  C. Since it is a hardy tree, it thrives well in a wide range of soil right from pH 5 upto pH 10 where many other fruit trees fail. it can tolerate even every alkaline soil as well as stony soils. however, well drained sandy loam is the best.

**Cultivars and propagation:**

There are lot of variation seen among the progenies raised from seeds for size and shape of fruits, bearing habit, pulp quality, colour, texture, sugar percentage etc., Cultivars like 'Mirzapuri', 'Kaghli', 'Gonda' and a few selections from Faizabad like KB 11, KB 1, Dhar Road and Ayodhya are found to be better. Root stocks are raised from seeds. On 6 months old seedlings, patch budding is done during June-July.

**Planting and interculture:**

Pits of size 50 cm x 50 cm x 50 m are dug at spacing of 10 M x M. The top soil should be mixed with 10 15 kg of FYM and pits filled up. Planting can be done during June-July or at beginning of monsoon. Every year regular application of 20-30 kg FYM should be done at the beginning of monsoon. Young plants are irrigated whenever there is monsoon failure. Any legume or forage crop can be taken as inter crop during early years. Young plants are trained with the help of stake. No annual pruning. However, criss-cross, weak and broken branches have to be removed periodically.

**Harvest and yield:**

Seedlings take 7-8 years for bearing, while budded plants start bearing at the age of 4-5 years. Flowering is seen in May-June and fruits become ready in 8-10 months viz., April-May matured fruits to be harvested individually along with fruit stalk and they should not be allowed to fall on the ground. A well grown tree of about 12-15 years age gives 300-500 fruits/year.