

Grewia optiva

J.R. Drumm.

Tiliaceae

dhaman, biul

LOCAL NAMES

Hindi (dhaman,biung,biul,Bihul,bhimal,bhengal,bewal,behel); Nepali (shyalphusro,phusre,ghotli,Bhimal); Trade name (dhaman,biul)

BOTANIC DESCRIPTION

Grewia optiva is a small to medium-sized deciduous tree, 9-12 m in height; crown spreading; bole clear, 3-4 m, and about 1 m diameter. Branches smooth, pale silvery-brown; bark dark brown, thick and roughish, exfoliating in small woody scales; blaze rather fibrous, pale yellow, often tinged pink towards the exterior, juice slimy.

Leaves opposite, 5-13 cm x 3-6 cm, ovate, acuminate, closely serrate; teeth small, blunt; rough and hairy above, pubescent beneath, base rounded, slightly oblique, 3-nerved; petiole 0.3-1 cm long, stout, tomentose; stipules 0.5 cm long, linear subulate, caducous.

Flowers 1-8, together; peduncles solitary, leaf opposed or exceptionally a few axillary; tomentose, 0.8-1.8 cm long. Sepals 1-1.5 cm long, linear oblong, 3-ribbed, green outside, white, pale yellow or red inside; petals white or pale yellow, shorter than the sepals, linear, claw distinct.

Fruit is a drupe, 1-4 lobed, each lobe about 0.8 cm in diameter, olive green then black when ripe.

The genus was named after Nehemiah Grew (1641-1712), one of the founders of plant physiology.

BIOLOGY

Old leaves are shed in March and April and new ones appear in April-May. Flowers appear with the new flush of leaves. The fruits are formed soon after and attain full size by September, ripening between October and December. The immature fruit is olive green, turning black on ripening. Fruits are much liked by birds, the major dispersal agent. The fruits are borne on previous year's shoots.

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ECOLOGY

This is a tree of the subtropical climate. In its natural habitat, the maximum shade temperature seldom exceeds 38 deg. C and the minimum temperature rarely drops below -2 deg. C. It tolerates frost which is common during autumn and winter. The upper reaches receive light snowfall during January-February. Most of the rain is received during monsoon. Autumn and summer months are usually dry.

BIOPHYSICAL LIMITS

Altitude: 0-2 000 m

Soil type: Though it grows on a variety of soils, sandy loam with adequate moisture is the ideal one.

DOCUMENTED SPECIES DISTRIBUTION

Native: India

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Food: The ripe fruits are edible. Raw or cooked, it has a pleasant acid taste.

Fodder: The leaves are rated as good fodder and trees are heavily lopped for this purpose in the winter months when usually no other green fodder is available. The green leaves constitute about 70 % of the total green weight of branches. Leaf fodder yield is reported to be 11 ton/ha from 2-year-old plants, green fodder yield from mature trees is reported to be 12-30 kg.

Leaves are fairly rich in protein and other nutrients and do not contain tannins. Crude protein is highest in young leaves and in winter leaves but decreases during the rainy season.

Fuel: The wood has an unpleasant odour and is, therefore seldom used as fuel if an alternative is available.

Fibre: The bark yields a fibre that is used for cordage and clothing.

Timber: The wood, weighing 801 kg/cu. m, is whitish with little reddish-brown heartwood. It is fine textured with distinct growth rings. It is hard, tough with good elasticity and strength properties. It becomes difficult to work by hand after seasoning. The timber is used for oar shafts, poles, frames, tool handles and other purposes where strength and elasticity are required. It is thought to be suitable for paper production and branches are used for making baskets.

SERVICES

Boundary or barrier or support: The tree is often planted in hedges and field boundaries.

Intercropping: The tree is planted combined with climax grass.

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TREE MANAGEMENT

Planting is done in July in pits dug in summer or at the beginning of the rainy season. Spacing is at 3 x 3 m for block planting and 4-5 m for single row planting along the fields. Plantation area should be protected against browsing, grazing and fire.

The tree requires complete overhead light for optimum growth. Severe frost causes die back in seedlings. The tree pollards and coppices well, whippy branches are lopped yearly for fodder and fibre.

GERMPLASM MANAGEMENT

There are 10 000-15 000 seeds/kg which can be stored for at least 1 year in the open without loss of viability. Fruits are rubbed and washed in water to remove the flesh. Each fruit contains 2-4 seeds.

PESTS AND DISEASES

The larvae of *Diacrisia* sp. Var *indica* and *Chasmina tibialis* defoliate the tree while the larvae of the family *Cerambycidae* bore in dead and dry wood.

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FURTHER READNG

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SUGGESTED CITATION

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