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Jøker, Dorthe

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Acacia seyal Del.

Taxonomy and nomenclature

Family: Fabaceae (Mimosoideae)
Synonyms: *A. stenocarpa* A. Rich.; *A. hockii* De Wild.
Vernacular/common names: thal, white thorn, whistling thorn (Eng.); soffa (Arabic); epineux, seyal (French); bulki (Fula); fullai (Somali); dushe kerafi (Hausa); mgunga (Swahili).

Two varieties are recognised, var. ***seyal*** and var. ***fistula***.

Distribution and habitat

Widespread in the semi-arid zone of tropical Africa from Senegal eastwards to Somalia and the Red Sea, and from the Nile valley south to Zambia. The range of the two varieties is quite distinct, var. *seyal* extending north- and westwards from central Sudan, var. *fistula* south of latitude 10°S.

Normally found in areas with 500-1200 mm rain/yr. and a distinct dry season. The upper elevation limit is about 2000 m. Lowest temperature within its natural range is 5-10°C occasionally below 5°C at high altitudes but the pattern of distribution indicates a frost-sensitive species. Grows well on deep, heavy soils with high pH (6-8) and especially var. *fistula* is tolerant to waterlogging.

Uses

Nitrogen-fixing species that is excellent for silvo-pastoral systems. The bark provides valuable forage for cattle and game and leaves and pods are used for fodder. The dry matter net energy contents of both varieties are high, 6-8 MJ kg^{-1} (foliage) and 4-7 MJ kg^{-1} (fruits) and the digestible protein content is 8-12% in leaves and 13-15% in fruits.

Also used for gum production (gum talha) though not as valuable as gum arabic.

Especially var. *seyal* is an important source of fuelwood and charcoal, stands managed on a 10-15 year rotation yield 10-35 m^3 fuelwood per ha.

Botanical description

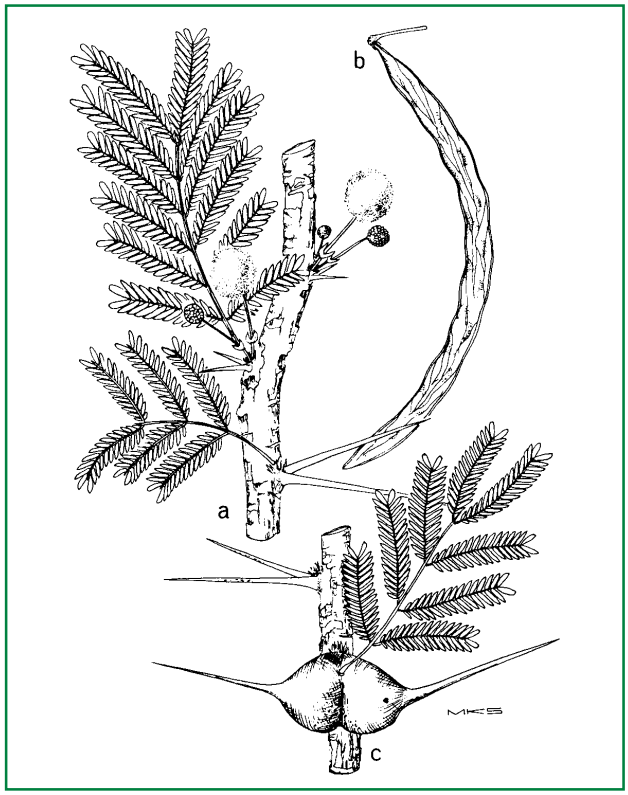
Variable species. Tree up to 9 m tall, sometimes reaching 17 m, with a flattened, spreading crown. The slash is bright red, exuding yellowish gum. In var. *fistula* the powdery bark is normally white or greenish-yellow while var. *seyal* has reddish bark.

Both varieties have straight thorns in pairs, up to 8 cm long but only var. *fistula* bears whistling thorns (ant-galls) that are fused at the base.

Leaves are bipinnate with 2-12 pairs of pinnae each with 10-22 pairs of leaflets. Flowers bright yellow, in large round heads, 2-3 flower heads together in the leaf axils.

Fruit and seed description

Fruit: the dehiscent pods are light brown, slightly curved, 7-22 cm long, with fine longitudinal veins and slightly constricted between the seeds. There are 6-10 seeds/pod.
Seed: light brown, 6-9 mm long, 4-5 mm wide. There are 20,000-25,000 seeds/kg.



A. seyal var. *seyal*. a, flowering branchlet; b, pod. *A. seyal* var, *fistula*. c, sterile branchlet showing "ant-galls". Illustration from Ross 1977.

Flowering and fruiting habit

Flowering is concentrated in the middle of the dry season and ripe fruits are available about 4 months later.

Harvest
Full-sized pods are harvested from the tree before they open.

Processing and handling
The pods are dried in the sun until they open and the seeds are released.

Storage and viability
Seeds are orthodox and can be stored for several years if they are well dried and kept cool and free of insects. Moisture content for storage should be 4,5-9%.

Dormancy and pretreatment
There are various reports on the need for pretreatment, possibly due to differences in provenance. Most agree, however, that pretreatment accelerates the germination rate. The most common method is scarification.

Sowing and germination
Germination is rather slow, normally about 30% in 7 days. The seeds can be pregerminated on moist filter paper to allow rapid identification of viable, non-dormant seed. The germinated seeds are transferred to containers filled with a silt-rich medium. Seedlings require shade until the second leaf expands and watering at intervals of 1-3 days as necessary to keep the medium moist but not waterlogged. Direct seeding in prepared planting spots is practised with success in Sudan; at early stages of development *A. seyal* was capable of competing with weeds.

Nodulation occurs in natural populations. In artificial regeneration it has been achieved by pelleting seed with culture of bacterial isolates, sowing into an infected medium or germinating in unsterilised soil. Uninfected seedlings have been inoculated successfully by treatment with a suspension of a symbiont. *Rhizobium* strains from *A. mellifera* and *A. senegal* and *Bradyrhizobium* from the latter have proved to be effective symbionts.

Phytosanitary problems
Over 40 species of insects are reported associated with *A. seyal*. These include 10 species of bruchid beetles, which may damage large proportions of stored seeds.

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Acacia seyal with green bark. Ethiopia. Photo: Henrik Keiding, DFSC

THIS NOTE WAS PREPARED BY
DANIDA FOREST SEED CENTRE

Author: Dorthe Jøker

Danida Forest Seed Centre
Krogerupvej 21
DK-3050 Humlebaek
Denmark

Phone: +45-49190500
Fax: +45-49160258
Email: dfsc@sns.dk
Website: www.dfsc.dk