ECHO Asia Seed Fact Sheet

Scientific name – *Crotalaria juncea*

English common name – Sunn hemp, sun hemp, san hemp, benares hemp, bengal hemp, bombay hemp, brown hemp, indian hemp, jubbalpore hemp, madras hemp

Asian common names –

- Bengali: Ghore sun, Shon, Shonpat
- Chinese: 太陽麻 Tai yang ma (Taiwan), 菽麻 Shu ma
- Hindi: Kharif, Sannai sunn, Sannai, Sunn
- Japanese: クロタラリア・ジュンセア Kurotararia junsea
- Khmer: Kâk'tung
- Laotian: Po: th'üang, Thwax chu:b
- Malay: Orok-orok lembut (Indonesia)
- Tagalog: Karay-kagay, Putokputukan
- Tamil: Sanal, Sannappu
- Thai: ปอเทือง Po thueang
- Vietnamese: Cây muồng

Photo: ECHO Asia staff

Variety – **Chiang Mai**

General description and special characteristics – Sunn hemp is an erect, annual legume with rapid, vigorous growth, bright yellow flowers, and plump, pubescent seed pods. The plant generally grows unbranched from the ground to approximately 60 cm (2 ft.) up the stem. Above this height, stalks will begin to branch out if not too tightly crowded. When grown in dense stands, as for a green manure/cover crop (gm/cc), sunn hemp will have a single, spindly stem that can reach 3 m (10 ft.) in height. With vigorous lateral roots and a long taproot that can exploit subterranean water sources, sunn hemp does demonstrate some drought resistance.

Crop uses (culinary) – Sunn hemp flowers are consumed raw or cooked in soups and omelettes.

Crop uses (soil improvement) – Sunn hemp is an excellent green manure cover crop that can return more organic matter to depleted soil than most clovers or soybeans. Sunn hemp fixes approximately 94-125 kg N/ha (83-112 lb./acre) and produces about 31.3 tons of fresh weight biomass per ha (13.9 short tons/acre). It may even suppress root-knot nematodes. In many parts of the tropics, sunn hemp is grown in rotation with rice, maize, tobacco, cotton and other crops. It is sometimes grown with sugarcane, pineapples, and coffee and has been used as a cover crop in plantations and fruit orchards.

Crop uses (livestock production) - Most varieties of sunn hemp contain poisonous alkaloids that render this crop toxic to livestock. In some areas, sunn hemp hay has been fed to cattle (no more than 10% of the diet) and sheep (no more than 45% of the diet), but it is not recommended for pigs, horses, or general use as animal fodder.

Other uses – Traditionally, sunn hemp has been considered a good source of fiber for the manufacture of twine and cord, and it has demonstrated potential for use in pulp and paper.

Seasons of production – In tropical settings, sunn hemp can be planted all year-round; however, it is photoperiod-sensitive and flowering occurs in response to short days. Long day-lengths favor vegetative growth and reduce seed-set, although day-length neutral [varieties] exist (Mannetje).

Length of production and harvest period – Sunn hemp is a 120-150 day crop (Vilela). Flowering times vary, but in the tropics may occur as early as 40round 30 days after planting.

Pollination – Sunn hemp is self-pollinated, but requires the aid of insects, particularly bees, to release the pollen. Rates of cross-pollination are extremely high.

Planting distance – Planting distance for sunn hemp is determined by intended use. For use as a green manure cover crop, the University of Hawaii recommends preparing a weed-free seedbed and broadcasting pure live seed at 45–67 kg/ha (40–60 lb/acre), or drilling at 34–56 kg/ha (30-50 lb/acre) to a depth of 12–25 mm (1⁄2–1 in.) in rows 15 cm (6 in.) apart. Higher seeding rates are recommended if the crop will be incorporated within 30–45 days or if severe weed competition is expected. Fiber production requires spacing of approximately 0.5 – 1 m (1.5-3 ft.).

Production methods – Assuming adequate soil moisture, seedlings will appear approximately three days after seed is broadcasted and will rapidly produce a thick ground cover that smothers weeds. No care is needed following planting until harvesting ~~time~~, although attention should be paid to issues of lodging, because ~~as~~ the plants grow tall. If ~~being~~ employed as a green manure, the plants should be plowed into the soil at early flowering. At this stage, nitrogen content in the plant is high and decomposition rapid. If allowed to grow too tall (over 1 m/3 ft.) or too mature ~~too long~~, the stems will become fibrous and prove difficult to turn under.

Environmental conditions for production – Sunn hemp will grow in warm temperate regions, but most varieties will set seed only in the tropics and subtropics. Although it is adapted to hot climates, this plant will endure slight frost. It can be grown at 0-1500 m (approx. 5000 ft.) elevation. Sunn hemp does not tolerate extended water logging or heavy salinity.

Soil requirements – Sunn hemp grows vigorously in well-drained soils with a pH of 5.0 to 7.5, and because it is a legume that nodulates freely, it thrives even on poor soils with little or no nitrogen fertilizer. If grown as a fiber crop, however, sunn hemp should be sown in light, loamy soil. It will produce coarse fiber with low yields if grown on heavy clay. Inoculation is generally unnecessary, as the cowpea-type rhizobia that nodulate sunn hemp are present in most soils.

Pests and diseases – According to the FAO, "Sunn hemp is attacked by many diseases and pests, including viruses, fungi, insects and nematodes, but they usually cause little economic damage" (Mannetje). The FAO and other sources do acknowledge, however, that anthracnose, caused by *Colletotrichum curvatum*, wilt caused by *Fusarium udam* and caterpillar larvae of the moth *Utetheisa pulchella* can prove destructive, along with pod-boring insects, which can interfere with seed production. Regular crop rotation, clean cultivation practices, and pre-planting treatments of seed with organic or chemical fungicides have proven the best measures for control in battling these pests.

Seed saving – For optimal seed production, sunn hemp should receive regular watering until about 75% of the plants are flowering. Seed pods should be allowed to mature and dry on the plant. For best results, schedule planting to enable seed pods to come to maturity during dry season. Approximately five months are required for full development and ripe seed.

References –

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