

ECHO Asia Seed Fact Sheet

Scientific name – *Vigna umbellata*

English common name – rice bean

Asian common names –

- Burmese: beli, be nauk, be pwe, be sang, be te, be tyel, ning krung shapre, pe nauk saung, pé yin
- Chinese: 赤小豆 *chi xiao dou*, 米豆 *mi dou*
- Khmer: sândaêk ângkât miêhs, sândaêk rieh mieh
- Laotian: thwàx la:ng tê:k, thwàx sadê:t pa:x, thwàx phi.
- Malay: kacang uci (Indonesia), kacang sepalit (Malaysia).
- Thai: ถั่วเป็ล thua pae
- Vietnamese: đậu gao



Photo: ECHO Asia staff

Variety –

- **Chiang Dao**

General description and special characteristics – Rice bean is a twining annual with yellow flowers and edible beans that can also be grown as a semi-perennial. There are both climbing and bush types of rice bean. It is commonly grown for food, as fodder, and intercropped with rice, corn, sorghum, and cowpea in the upland tropics. It matures quickly, is relatively free of major insect and disease problems, and produces easily cooked, good-tasting seeds. The English name is a literal translation of its name in Chinese.

Crop uses (culinary) – Rice bean in India is most often served as a dhal (a pulse that is stripped of out hull and split), either soaked overnight and boiled with a few spices, or cooked in a pressure cooker. It can also be made into flour. Green pods are often consumed in Southeast Asia. With 16-25% protein, the raw protein content of rice bean is lower than that of most pulses. In Nepal, rice bean is perceived to some extent as a “poor man’s food.” The beans are commonly cooked with rice; hence its name.

Crop uses (soil improvement) – Rice bean is valuable for its ability to fix nitrogen in depleted soils and in mixed cropping with local varieties of maize, as well as for its beneficial role in preventing soil erosion. The crop receives almost no inputs, and is grown on residual fertility and moisture and in marginal and exhausted soils. Rice bean reportedly fixes 80 kg N/ha (71 lb N/ha). A field study in Faisalabad, Pakistan, demonstrated that seed mixtures of 50:50 or 35:65 (sorghum to rice bean, respectively) resulted in sorghum crops that were significantly taller, and with greater green and dry matter yields. In general, rice bean establishes quickly and smothers weeds. It produces up to 33 tons/ha (15 short tons/acres) of fresh biomass.

Crops uses (livestock production) – Rice bean is valuable as a high class fodder which is known to increase milk production in livestock. The foliage, green pods, immature seeds, and flowers are all readily eaten by animals.

Seasons of production – Generally considered an underutilized food plant, rice bean grows well in hot weather and can survive drought conditions.

Length of production and harvest period – Yellow flowers are followed by round pods in heavy producing groups of 5-12 about 10 cm (4 in) long. The plants require short days to flower. Seeds are ready for harvest 90-120 days after planting depending on the time of year. It is a determinate crop, so the pods mature simultaneously and the whole crop can be harvested at one time. Care to harvest in a timely manner is crucial, as shattering is a common problem in comparison to other grain legumes, and can be a serious problem after frequent durations of wetting and drying.

In equatorial climates, the bean can mature in as little as 60 days.

Production methods – In South and Southeast Asia, rice bean has been grown in rice fields after the rice harvest as a food crop and to improve nitrogen content of paddy soil before the second rice planting. It is mainly grown at elevations between 700 and 1300 m (2,297-4,265 ft), although in home gardens, it is found between 200-2,000 m (656-6,562 ft). In Indonesia, rice bean is grown as a hedge, providing privacy as well as a supply of leaves, pods, and seeds for food.

Pollination info – Generally understood to be self-fertilized, rice bean is very sensitive to day-length. Flowering and seed set are initiated only when days are short. Unfortunately, in the subtropics, this occurs during the cooler seasons when growth is slower. Planted at other times, leaf production is vigorous but there is little seed production.

Environmental conditions for production – Rice bean is adapted to regions with 1,000–1,500 mm (39-59 in) precipitation, and is tolerant to high temperatures and high humidity. It is also moderately tolerant to drought. Generally, many rice bean cultivars adapt well to drier conditions and can grow where cowpeas grow well.

Soil requirements – In the hilly areas of Nepal and northern and northeastern India, rice bean is known among farmers for its wide adaptation to diverse soil conditions and production on marginal lands, drought-prone sloping areas, and rain-fed flats. It is tolerant to waterlogging to some degree (except for younger plants) and is known to grow on acid soils.

Pests and diseases – Tests at the Asian Vegetable Research and Development Center (AVRDC) demonstrated that among pulses, rice bean is least attacked by the bean fly. It is generally resistant to common leguminous diseases, including powdery mildew, damping off, and bacterial leaf spot. However, rice bean can be susceptible to attack by root-knot nematodes.

Seed saving – Rice bean is allowed to dry on the plant before harvest, but one must be careful to harvest before the pods shatter. The dry seeds are easy to shell from the pods. Like other pulses, with weevil control, the seeds can store well for 3-4 years under cool, dry conditions.

References –

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