

# NIGER SEED

*Guizotia abyssinica*

Asteraceae

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## ECHO® PLANT INFORMATION SHEET

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### Description

Niger seed is an erect, annual dicotyledonous plant that develops yellow flowers that produce shiny black seeds. In Ethiopia, India, and Myanmar, it is primarily grown as an oilseed crop, but also produced to sell to various countries as wild bird seed.

### Uses

Crop uses (culinary) – Niger seeds contain around 40% oil and about 20% protein. The edible oil is the main product from Niger seed in both Ethiopia and India and has a nutty taste. Niger oil has a fatty acid composition typical for other compositae family oils, such as safflower and sunflower, and is considered to be among the healthier selections (Getinet and Sharma 1996).

Crop uses (soil improvement) – Following the seed harvest, niger crop residues are left behind in fields. The dried stalks may be used to mulch fruit trees or merely spread out to decompose over the soil surface, serving as a source of organic matter. Due to a possible allelopathic weed-suppressing effect, niger is recognized as an effective green manure cover crop.

Crops uses (livestock production) – Following oil extraction, the seed cake can be stored and used as an animal feed supplement. Niger seed meal is reported to be free from any toxic substance and contains more crude fiber than most oilseed meals. The by-product also contains 30% protein and 23% crude protein. In northern Thailand, on a limited basis, niger seed cake is fed to pigs, providing the necessary protein within feed rations.

Other uses – After cooking oil needs are met, the niger seed surplus in many countries is exported for bird food, mainly to the United States and Europe. Niger oil is also used for lighting, anointing, painting and cleaning of machinery. It can also substitute for sesame oil for pharmaceutical purposes and can be used for soap-making (Getinet and Sharma 1996).

### Common Names

### Cultivation

Seasons of production – Requiring short day-length for flowering, niger is best planted during the period of decreasing day-length in the higher latitudes of the tropics and sub-tropics. Thriving on minimal soil moisture once the root system has been established, in monsoonal Asia, niger can be ideally be planted from August through early October before the rains end. Rainfall during seed-setting and maturity will lead to seed shattering and low yield.

Length of production and harvest period – Niger is best planted towards the end of the rainy season, with the harvest of mature seeds (following flower petal fall) taking place approximately three months later.

Pollination – Niger is described as a completely outcrossing species.

Plant spacing – In the uplands of Myanmar and Thailand, establishment of the niger seed crop is done by simple hand sowing. Seeding rates in the region reportedly vary between 2 and 10 liters of seed per rai or roughly 7.6 to 38 kg/ha (6.8 to 33.9 lb/acre). Indian planting rates are reported at 4.5 to 11.2 kg/ha (4 to 10 lb/acre).

Pure stands of Indian niger were reported to be broadcast or planted in rows 30.5 to 35.6 cm (12 to 14 in.) apart, whereas niger growers along the Thai-Myanmar border suggest that a planting distance of 20 to 30 cm (7.9 to 11.8 in.) between hills is desired to enable the crop to outcompete weeds

Environmental conditions for production – Ethiopian niger is reportedly grown mainly in mid-altitude and high areas (1,600-2,200 m or 5,249 - 7,218 ft. elevation) but also in lower elevations with enough rainfall. In India, rainfall between 1000-1300 mm (39-51 in.) is optimal, although well-distributed rainfall of 800 mm (32 in.) can produce "a reasonable yield" (Getinet and Sharma 1996). These rainfall figures are comparable to those that occur in the new niger production areas of northern Thailand.

Soil requirements - In Ethiopia, niger is valued for its ability to thrive on waterlogged soils where other crops fail. It is usually grown on "light poor soils with coarse texture" – basically on almost any soil that is not extremely heavy. Getinet and Sharma also report that Niger grows well at pH values between 5.2 and 7.3 (1996).

### Harvesting and Seed Production

Niger seed is ready for harvest soon after the petals of the yellow flowers begin to wither and fall from the heads (approximately three months after planting). When mature, the niger stalks are cut below the branches and laid out to dry in the fields for 3 to 4 days.

In northern Thailand, it is estimated that under favorable conditions, approximately 1 rai (1600 m<sup>2</sup>) of Niger seed production land would be adequate to produce a family's yearly requirement of cooking oil.

Seed saving – Following drying, farmers thresh the seeds by grasping the stalks and beating the seed heads on a wooden platform placed over a canvas in the field. Afterward, the shiny, black seeds are cleaned and stored. Niger has orthodox seed storage behavior (meaning seeds can tolerate drying and/or low-temperatures) and can be stored for many years, assuming low seed moisture content.

## Pests and Diseases

Pests and diseases – Except for rats, no other niger seed pests have been reported in northern Thailand. Getinet and Sharma (1996) report that a total of 24 insects have been recorded on niger in both Ethiopia and India. Other pests include dodder (*Cuscuta campestris*), a parasitic weed.

## References

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