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Plant introduction - *Tephrosia noctiflora* Bojer *(Seemai kolingi)*, A new Green manure crop for South India *

by

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Synopsis: In the Madras State, the plant *Tephrosia noctiflora* Bojer *(Seemai kolingi)* was introduced for trial purposes in 1954 and its performance studied in the various Agricultural Research Stations of the State. Based on the studies, the utility of the plant as a good green manure crop for South India has been discussed in this paper.

Tephrosia noctiflora Bojer is a perennial shrub and has been recorded to be indigenous to Zanzibar, South Africa and Mauritius (Oliver, 1879). Ridley (1922) and Burkill (1935) have reported the occurrence of this species in the peninsular areas of South Eastern Asia.

Tephrosia noctiflora was introduced in this State for trial in March 1954 from the Experimental Plantations, Gautemala in Central America under the Plant Introduction Programme of the State in the Botany Section of the Agricultural College & Research Institute, Coimbatore. It was tried at the various Agricultural Research Stations of the State, viz., Aduthurai, Pattukottai, Kovilpatti, Tirur and Bhavanisagar besides Coimbatore. This species has quick growth reaching a height of about 1·5 to 1·8 metres (5 to 6 feet) (Plate I) in about four months with plenty of foliage. It comes up well both under rainfed and irrigated conditions. Due to its higher yield than *Tephrosia purpurea (Kolingi)* and the easiness with which the seeds could be collected in this species, this can replace *T. purpurea*, the existing green manure crop.

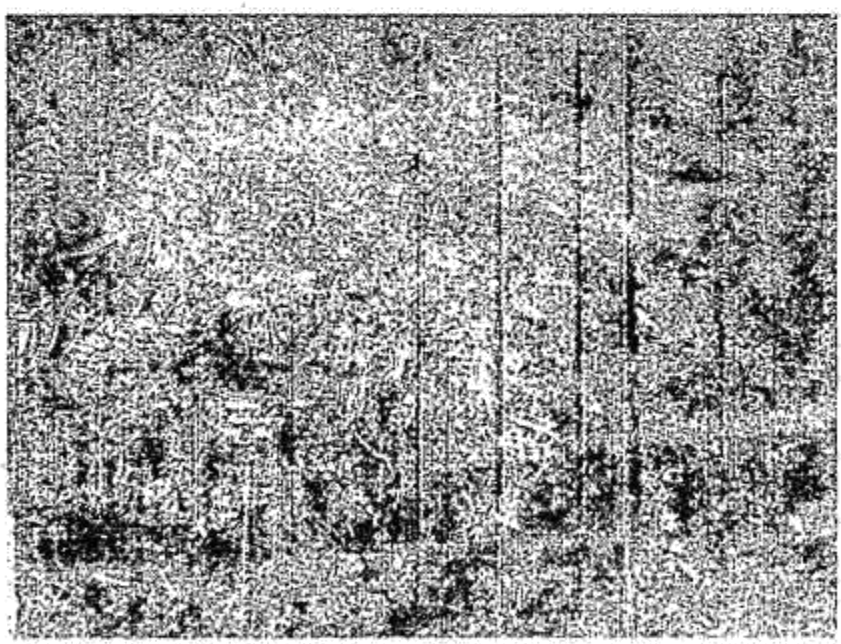

PLATE I.

Tephrosia noctiflora

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Description: *Tephrosia noctiflora* Bojer (Syn. *Tephrosia subamoena* Prain) (Plate II). Perennial attaining 1 to 1·8 metres in height; stems suffruticose, copiously branched, densely clothed upwards with fine silky pubescence; stipules linear-subulate, 0·5 cm. long; leaves subsessile; rachis 10–12 cm. long, leaflets 19–21, narrowly oblanceolate, 2–3 cm. long, 1 cm. broad, glabrous above, thinly adpressed, grey silky beneath, apex rounded, mucronate; racemes lax, terminal, the main ones sometimes 25–35 cm. long; bracts clothed with ferrugineous silky hairs, 2 lines deep, the lower tooth lanceolate equalling the tube, the others shorter and deltoid; corolla 0·5–2 cm. deep, light purple, the standard 0·5–0·8 cm. broad, curved upwards, densely clothed with fine brown silky hairs; 8–9 seeded, number of seeds per gram–80 to 90.

PLATE II.

Results of trials in other countries: From the trials conducted at the Royal Botanic Gardens, Kew (Anon. 1914) for a period of over seven years *Tephrosia noctiflora* had proved consistently to be satisfactory as a green manure with plenty of foliage. Broadcasting as well as line sowing were observed to be good. This species was observed (Anon. 1936) to be promising as a green manure crop when grown among the Arabian Coffee at the Experiment Station, Peradynia, Ceylon. In the trials with *T. noctiflora* in Java, an average yield of 31,745 lb./ac. (14,171 kg./ac.) had been reported. This species is also mentioned to be grown in Hawaii, Peurto Rico and Sierra Leone for green manure besides its usefulness as a cover crop in Zanzibar.

Trials in Madras State: In Madras State this new introduction was tried at the different regions in the various Agricultural Research Stations already mentioned and has fared well as a green manure crop. It grows to a height of about 1 to 1·8 metres in about four months with vigorous growth. It was recorded to yield about 11,200 lb./ac. (5,000 kg./ac.) of green matter at the Rice Research Station, Tirur and found to do much better when compared to *T. purpurea (Kolingi)* which gave only about 4,480 to 6,720 lb./ac. (2,000 to 3,000 kg./ac). The trials at the Agricultural Research Station, Paramakudi

showed *Tephrosia noctiflora* to be satisfactory in growth in that station and flowering earlier compared to *T. purpurea*. The trials at the Agricultural Research Station, Kovilpatti also showed *T. noctiflora* to be a good green manure crop with an acre yield of 20,925 lb. (9,300 Kg./ac) during the year 1959. Trials at Bhavanisagar and Regional Research Station, Aduthurai during 1963 with a view to compare *Tephrosia noctiflora* with *T. purpurea* gave results which show that *T. noctiflora* is more vigorous in both the places than *kolingi*.

The chemical analysis for the manurial value has been carried out at the Agricultural College and Research Institute, Coimbatore at the stage of flowering and the following is a comparative analysis with *T. purpurea*.

Chemical analysis on Moisture free basis

Particulars	*Tephrosia noctiflora*	*Tephrosia purpurea*
Total Nitrogen (N)	3·3	2·3
Total Phosphoric acid (P_2O_5)	0·61	0·31
Potash (K_2O)	1·12	1·34

From the foregoing table it can be seen that the nitrogen composition, which forms an important aspect in any green manure is more in *Tephrosia noctiflora* than that of *T. purpurea*.

Seeds have been reported to be viable for over a year and a half giving a germination of about 80% (Anon. 1914). Similarly in the germination tests conducted here with seeds stored for 18 months it was observed that the germination was as high as 85%. The plants produce fruits and seeds very freely which make it easy for collection before ploughing *in situ*. There is also the natural dehiscence of pods and dissemination of seeds which will help towards self sowing in subsequent seasons.

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