

Plant Introduction in Madras State — on the
Preliminary Trials of Fourteen Varieties of Beans
(*Phaseolus vulgaris* Linn.) Received from Hungary

by

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Introduction: Plant introduction as one of the direct methods by which crop improvement can be effected is well recognized. By introducing exotic plants from areas with similar ecological conditions into suitable tracts and acclimatising and exploiting them for extensive cultivation, quicker results are obtained. This aspect of crop improvement came to be recognised by the Government of Madras as early as the latter part of 19th Century and the work was carried out at the Government Botanical Gardens, Ootacamund, Sim's Park, Coonoor, gardens at Kalhatti and the fruit stations at Kallar and Burliar. The results of these Plant Introduction trials on the Nilgiris have been well brought out by Krishnamurthi (1953). All these stations which are situated on the Nilgiris at elevations ranging from 1500 to 7500 ft. enjoy diverse climatic conditions tempered by the altitude and the monsoon rains received during the different seasons of the year. The acclimatisation and extensive cultivation of potato, most of the exotic vegetables, Cinchona, sub-tropical fruits, spices like cloves, nutmeg, all-spice, *Cinnamon* etc., and the nearly hundred species of *Eucalyptus* are the results of such Plant Introductions.

In the year 1947 a scheme for the intensive Plant Introduction and trial was sanctioned by the Government of the then composite Madras State with five Research Stations namely Ootacamund, Wynaad, Siruguppa, Aduthurai and Anakapalli as its venue of work. The scheme ran only for a year and it resulted in successful introduction of *Ochroma lagopus* (Balsa - Aeroplane Wood), *Pelargonium graveolens* (scented Geranium), *Salix babylonica* (Weeping willow) and *Ocimum kilimanjaricum* (Camphor tulsi). Rajasekhara Mudaliar C. (1953).

The Plant Introduction and acclimatisation trials are now being carried out as a routine item of work by the Division of Botany, Agricultural College and Research Institute, Coimbatore in collaboration with the various Crop Specialists and the officers-in-charge of the different Research Stations of the State. So far over 2500 species and varieties have been under trial from introductions

from different parts of the World and within the country for trial as fodders, essential-oil yielding plants, fibre plants, green manuring and green leaf manuring plants, cover crops, soil conservation plants etc. These trials have enabled the successful introduction of *Panicum antidotale* (Australian Drought Resistant Grass from Australia), *Cenchrus glaucus* (Blou buffel) and *Cynodon plectostachyon* (Giant Star grass) from Tropical Africa among grasses and *Calapagonium mucunoides*, *Centrosema pubescens* and *Indigofera teysmanii* among legumes from Ceylon. The special variety of Kapok (*Ceiba pentandra* var. *caribaea*) another noteworthy introduction from Malaya, which is gaining considerable importance because of its precocious and prolific bearing. Many more noteworthy introductions are under extensive trial.

Fourteen varieties of French beans both bushy and runner types were received from the Department of Agriculture, Budapest, Hungary during 1958. These were tried at the Agricultural Research Station, Nanjanad, the Pomological Station, Coonoor, Government Botanical Gardens, Ootacamund and the Millets Breeding Station, Coimbatore with a view to acclimatising and selecting the most suitable ones for growing as vegetables.

Performance of the Varieties Tried: The seeds of the fourteen varieties were sown during the spring of 1958 and 1959 at Ootacamund, Nanjanad and Coonoor; at Coimbatore they were sown during November 1959. The performance of all these varieties tried has been summarised in the tabulated statement:

Results of the Trials:

1. Of the fourteen varieties tried, Balfi (1058) has been found to be the best and has performed well in all the Stations tried, with prolific setting. Pods are soft and less stringy.
2. Soproni lopus (1056), Balfi (1058) and Tetenyi gyongy (1059) were found to do well at lower elevations like Millets Breeding Station, Coimbatore.
3. Wach's superba (1066) was found to give good fruit set only at Ootacamund and hence suitable to the locality.
4. Varieties Soproni lopus (1056), Tetenyi gyongy (1059) are runners while Tetenyi furj bab I tip, (1060), Tetenyi furj bab II tip (1061), and Sure Crop (1065) are twiners. The rest of the varieties are erect in habit.

5. Earliness in flowering and bearing was observed in the varieties Tetenyi furj gyongy (1059), Tetenyi furj bab I tip (1060), Javitott arayenso (1062), Full Crop (1063), Sure Crop (1065) Kidney wax (1067), and Wachs Superba (1066).
6. Poor fruit setting was recorded in Tetenyi cukor (1057), Tetenyi gyongy (1059), Tetenyi furj bab I tip (1060), Tetenyi furj bab II tip (1061), Tender green (1064), Sure crop (1065) and Kidney wax (1067).
7. Varieties Soproni lopus (1056), Tetenyi cukor (1057) and Tetenyi gyongy (1059) were found to be susceptible to diseases like leaf spot and rust.

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TABLE I
Summary Statement of the Performance.

Name of the Variety accession No.	Growth and Growth habit	Flowering	Fruiting	Remarks
1. Balfi (1058)	Erect and bushy with very vigorous growth	Late (42 days)	Late (70 days) and good	Vigorous growth with pro- lific fruit setting both in the plains and in the hills. Pods long, soft and less stringy. Cooking quality medium.
2. Full Crop (1063)	Erect and bushy	Early (30 days)	Early (55 days) and good	Pods yellow and medium long. Cooking quality med- ium. Performed well in all the hill stations.
3. Totenyi Ken Bab (1055)	Erect and bushy	Late (42 days)	Late (70 days) and good	Uniform performance in all the hill stations. Pods long, flat and green. Cooking quality normal
4. Soproni Lopus (1056)	Runner with vig- orous foliage	Late (42 days)	Late (70 days) and moderate	Growth good in all the hill stations. Pods short and fibrous. Cooking quality medium. Susceptible to leaf spot disease at Coonoor and Nanjanad.

Name of the Variety accession No.	Growth and Growth habit	Flowering	Fruiting	Remarks
5. Javitott Arayenso (1062)	Erect and bushy with vigorous growth	Early (30 days)	Early (55 days) and moderate	Pods yellow and medium long. Cooking quality nor- mal. Performed well in all the hill stations.
6. Golden Wax (1068)	Erect with poor growth	Late (42 days)	Late (70 days) and moderate	Pods flat and yellow. Cooking quality medium.
7. Tetenyi Furj Bab II Tip (1061)	Feeble twiner	Late (42 days)	Late (70 days) and poor.	Pods broad with red streaks. Cooking quality medium.
8. Tender Green (1064)	Erect with luxur- ient growth	Late (42 days)	Late (70 days) and poor	Pods medium long, purple streaked. Cooking quality medium. Pod formation was good at Coonoor and very poor in the other hill stations.
9. Wach's Superba (1066)	Erect with slow growth	Early (30 days)	Early (55 days) and poor	Fruit set was good only at Ootacamund. Germination and growth was slow in the other hill stations. Pods plumpy, yellow and cylindric. Cooking quality medium.

Name of the Variety accession No.	Growth and Growth habit	Flowering	Fruiting	Remarks
10. Sure Crop (1065)	Feeble twiner	Early (30 days)	Early (55 days) and poor	Pods yellow, long and fibrous. Cooking quality medium.
11. Tetenyi Furj Bab I Tip (1060)	Twiner with vigorous growth	Early (30 days)	Early (55 days) and poor	Pods moderately long, many seeded with purple streaks. Cooking quality inferior. Growth vigorous in all the hill stations. Pod formation poor at Nanjanad and Ootacamund.
12. Tetenyi Cukor (1057)	Erect and bushy	Late (42 days)	Late (70 days) and very poor	Fruit setting was very poor at Coonoor and completely absent at Ootacamund. Cooking quality normal. Susceptible to rust disease in all the stations.
13. Tetenyi Gyongy (1059)	Runner	Early (28 days)	Early (55 days) and poor.	Pods broad. Cooking quality inferior and a poor bearer in the hill stations. Susceptible to Rust disease in all the stations.
14. Kidney Wax (1067)	Erect with very poor growth	Early (28 days)	Early (55 days) and poor	Pods yellow, plumpy and short. Cooking quality medium. Growth very poor in all hill stations.