

## Thar Kiran: Anthocyanin Rich High Yielding Variety of Indian Bean

Gangadhara K, Lalu Prasad Yadav, V.V. Appa Rao and A.K. Singh

Indian bean (*Lablab purpureus* L.,  $2n=22$ , Family- Fabaceae) is one of the most ancient crops among cultivated plants and an important prime leguminous vegetable crop cultivated by poor masses of tribal areas of our country. It is an agromorphologically diverse, domesticated and versatile legume vegetable crop owing to its multiple uses as fresh vegetable (pod, tender seed), pulse, forage crop/green manure, ornamental and industrial use. It is commonly called as Indian bean, hyacinth bean, lablab bean, country bean, Egyptian bean, Tonga bean, field bean. In India, major Indian bean growing states are Karnataka, Gujarat, Tamil Nadu, Andhra Pradesh, Madhya Pradesh and Maharashtra. In India its locally called by different names viz., Hindi-Sem; Bengali-Shim, Gujarati-Val, Marathi-Pavta, Telugu-Chikkudu, Tamil-Avarai, Kannada-Chapparadavare and Malayalam-Avara. Two types of *Dolichos* bean are recognized, i.e., *purpureus* var. *typicus*, which is a garden type with soft edible pods having less fibre in their pod walls. The second type is *purpureus* var. *lignosus*, which is a field bean grown for dry seeds generally used as a pulse. Its pods have a characteristic aroma and the pod walls have high fibre content.

Thar Kiran is new high yielding and anthocyanin rich variety (pole type) of Indian bean developed by Central Horticultural Experiment Station (ICAR-CIAH), Godhra, Gujarat. The Silent features of variety Thar Kiran and its cultivation practices are given below

### Thar Kiran

It is a high yielding and anthocyanin rich variety of dolichos bean having attractive shining purple colour pods. It is in vigorous in growth having dark green leaves with purple veins. The whole plant



has purple pigmentation in their stem, petiole, flower, leaf veins and pod. The plants have climbing (pole type) growth habit and grow up to 3.5-4.0 m and they require stacking or support for higher yield and better-quality pod production. The pods are medium having an average pod length, pod girth and pod weight of 10.8cm, 5.33cm and 8.4g respectively. It is performing well under rainfed semi-arid conditions and showed resistance to dolichos bean yellow mosaic virus disease under field conditions. The variety 'Thar Kiran' has higher nutritional value in terms of antioxidants, proteins, vitamins, micro nutrients and minerals. It is rich source of anthocyanins (190 mg/100g), proteins (5.4g/100g) and other antioxidants like total phenols (376.5 mg GAE/100g), flavonoids (42.6 mg cat.equival/100g), total antioxidants (662.5 mg AAE/100g),  $\beta$ -carotene (5.4

mg/100g), vitamin-C (89.34mg/100g) and lycopene (1.5mg/100g).

### **Cultivation practices for variety Thar Kiran**

#### **Soil and climate**

It is remarkably adaptable to wide areas under diverse climatic conditions such as arid, semiarid, Subtropical and humid regions where temperatures



vary between 22°C–35°C and is fairly tolerant to high temperatures. Low lands and uplands and many types of soils with pH varying from 4.4 to 7.8. Being a legume, it can fix atmospheric nitrogen besides leaving enough crop residues to enrich the soils with organic matter.

#### **Sowing, Seed rate, Spacing and Manure and Fertilizer**

The seeds are dibbled or drilled behind the plough. Thar Kiran is climbing/pole type variety hence it needs 5-6 kg/ha of seeds with a spacing of 75 cm X 1-1.5 m is followed for commercial cultivation. About 25t/ha of well decomposed FYM should be applied to the soil at the time of land preparation. Application of NPK 20:60:60 kg/ha is recommended. Half of N along with entire dose of P and K fertilizer should be applied at sowing time. The remaining half dose of N should be top dressed 30 days after sowing.

#### **Intercultural Operations**

Timely weeding is required to improve the growth of the crop and to keep the plot free from sucking insects. Weeds may be controlled mechanically or by using weedicides.

Pole type dolichos bean needs support, since the plants have climbing growth habit. The plants

should be trained on thin bamboo stakes or small iron poles for better growth and fruit set. Over-crowding of plant vines due to non-staking affects formation of pods and yield adversely. Staking improves plant spread and photosynthetic activity and color development in pods. As a result, there is higher yield due to

higher number of pods per plant.

#### **Irrigation**

Light irrigation is given when required. For higher yield the crop should be irrigated regularly at 7 -10 days interval. Flowering and pod development period are the critical stages.

#### **Harvesting and Yield**

Thar Kiran takes totally 12-15 pickings at 8-10 days interval. Fully grown immature pods are harvested for vegetable purpose. The fresh purple pods are harvested between 100 to 110 days after sowing. A total of 1100-1600 pods per plant with on an average yield of 7-9 kg/plant of fresh purple pods can be harvested under rainfed semi-arid conditions with yield potential of 60-63 t/ha.



## Conclusion

Thar Kiran is wrapped with anthocyanins (190 mg/100g), (antioxidants), protein, vitamins, micronutrients and minerals indicating its nutritional importance. It is a high yielding variety and found

dolichos bean yellow mosaic virus disease resistant under field conditions. The varieties have greater adoptability, high nutritional value and with minimum agronomical inputs will fetches higher yield under rainfed areas.

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