



Effect of different cultivars of vegetable pea (*Pisum sativum*) on green pods production under changing climate.

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Abstract

The study was laid out during autumn season of 2017 and 2018 at Kannauj district by Krishi Vigyan Kendra, Kannauj, C.S. Azad University of Agriculture and Technology, Kanpur. The recent release variety of *Kashi Nandani* was tested and compared with two local available checks. The experimental area situated in the catchments area of river Ganga, having sandy clay loam soil with low fertility status. The cultivar *Kashi Nandani* and local checks tested under smart agronomic condition. The eight farmers participated this programme. The highest yield of green pods was found under *Kashi Nandani* by 98.80 q/ha over average of local check (84.30 q/ha). Therefore, *Kashi Nandani* enhanced the pod yield by 14.50 q/ha or 14.60 per cent over the average of local checks.

The economic study displayed that *Kashi Nandani* registered highest net return Rs. 1,16,710.00/ha in comparison to average of local checks (Rs. 88,250.00/ha). The variation was also noted in BCR. *Kashi Nandani* showed BCR by 2.44, while local checks displayed average BCR by 2.09.

Keywords: BCR, Green pods yield, *Kashi Nandani* Local check

Introduction

Central Plain Zone of Uttar Pradesh is famous for the production of vegetable crops especially potato, because soil and climatic condition of this region are much conducive to vegetables cultivation. The cauliflower, cabbage, potato, pumpkin, bottle gourd, sponge gourd and vegetable pea for green pods grown by farming majority since long time during *rabi* and spring season. More recently the production of vegetable

pea started in Kannauj district as a major vegetable because the cultivation of this crop has been done by farming majority tit-bite. It is well known fact that vegetable pea is an important frost-hardy, cool season nutritious crop; therefore, its cultivation has popularized among the farming majority on large scale with the efforts of KVK, Kannauj scientists. It is a rich source of protein (25%), amino acid, sugar (12%), carbohydrate, vitamins A & C, calcium and phosphorus, besides having a small quantity of iron. Vegetable pea

contains calories (67), dietary fiber (2.4 g), protein (4.3 g), carbohydrate (12.5 g), vitamin A (478 IU), vitamin C (11.4 mg) folic acid (50.7 mg), iron (1.2 mg), potassium (217 mg) magnesium (31 mg). Green kernels of vegetable pea are eaten cooked as a vegetable and are marketed fresh, canned or frozen. The ripe dried kernels of vegetable pea are consumed with mixed vegetable after boiled. The main problem of the vegetable pea growing places of Kannauj is lower green pods yield due to growing of own stored seed material and poor yielder varieties. Singh *et al.* (2011) and Singh *et al.* (2014) reported that the better yield of green pods can be obtained with cultivation of different higher yielder cultivars of vegetable pea from the degraded soils of Central Plain Zone of U.P. Similarly, Singh *et al.* (2009) and Singh *et al.*, (2010) reported that cultivar *API*, *AP3* and *Arkel* gave good pods yield on light soils of South-Western-Semi-Arid Zone of U.P. The some progressive farmers of Kannauj district cultivate the *Kashi Uday* and *Kashi Mukti* cultivars for good green pod yield but not follow the smart agronomy for its better cultivation. Both these cultivars use as local check-1 and check-2. With the view to harvest higher green pods yield of vegetable pea and obtained the more net return, the *Kashi Nandani* cultivar of vegetable pea tried with full agronomical practices. The objective of this study was to find out the suitable variety of vegetable pea for maximum production of green pods in CPZ of Uttar Pradesh.

Materials and Methods

The study was laid out during autumn season of 2017 and 2018 at Kannauj district by the scientists of Krishi Vigyan Kendra, Kannauj, C.S. Azad University of Agriculture and Technology, Kanpur. The operational area of vegetable pea pods production typically represent soil, climate and social economic condition of Central Plain Zone-V of Uttar Pradesh. The soil of pilot area is sandy clay loam having pH 8.00, organic carbon 0.29%, total nitrogen 0.02%, available phosphorus 9.8 kg/ha and available potash 270 kg/ha, therefore, the fertilizer status was analyzed low. The pH was determined by Electrometric

glass electrode method (Piper, 1950), while organic carbon was determined by Colorimetric method (Datta *et al.* 1962). Total nitrogen was analyzed by Kjeldahl's method as discussed by Piper (1950). The available phosphorus and potassium were determined by Olsen's method (Olsen *et al.* 1954) and Flame photometric method (Singh, 1971), respectively. The cultivars *Kashi uday* and *Kashi Mukti* were sown in this experiment as local check-1 and local check-2, respectively. Cultivar *Kashi Nandani* was sown with smart agronomy and yield of green pods of this variety was compared to the pods yield of *Kashi Uday* and *Kashi Mukti*. The cultivars of vegetable pea was planted in mid November and green pods harvested after 60 days of planting. The recommended package of practices for green pods production was followed under *Kashi Nandani*, while local check 1 and 2 were grown by farmers with own practices. Since the on farm trial was laid out under irrigated situation, therefore, the irrigations were given as and when required. The trial was conducted on eight farmers fields.

Results and Discussion

The results obtained from the present study are summarized in Table -1, it shows mean of two years results on the effect of different varieties on height. No variations due to varieties in respect of plant height observed. No difference for first pod harvest among the cultivars was noted. The maximum pod length was measured in cv. *Kashi Nandani* (9.35 cm) closely followed by *Kashi Mukti* (9.30 cm). The minimum pod length was noted in *Kashi Uday* (9.15 cm). The minor different was noted in number of kernels/pod. The variation in plant height, length of pod and kernels/pod have also been reported by Singh (1994) and Singh *et al.*, (2011) due to genetic constitution.

The data (Table-1) revealed variations due to different tested varieties of green vegetable pod yield (q/ha). Among the varieties under study, variety *Kashi Nandani* registered highest green pods yield of 98.80 q/ha. Other two varieties i.e., *Kashi Uday* and *Kashi Mukti* used as local checks

and farmers raised under own technology gave at par green pods yield by 84.00 and 84.60, respectively, but yield levels of green pods under both checks were lowest in comparison to *Kashi Nandani*. The highest green pods yield of *Kashi Nandani* was due to test under smart agronomy and seed inoculation with *rhizobium* culture. Inoculation of seed with *rhizobium* culture of *Kashi Nandani* increased the green pods yield by 10 percent, therefore, *Kashi Nandani* gave highest green pods yield by 98.80 q/ha.

The highest pod length and more number of kernels/pod in cultivar *Kashi Nandani* were

responsible for higher green pod yield. These findings are in line with those reported by Singh (1999), Singh (2009), Singh *et al.* (2009), Singh *et al.*, (2011) and Chatto *et al.*, (2010).

Results of economic study given in Table-1 display that the variety *Kashi Nandani* tested under smart agronomy gave highest gross return Rs. 1,97,600/ha, net return Rs. 1,16,710/ha and BCR 2.44. The highest net return and BCR under cv. *Kashi Nandani* was due to higher green pod yield (q/ha).

Table-1: Growth, yield traits, green pod yield and economic study as affected by different varieties of vegetable pea.

(Pooled data of two years)

S. No.	Variety	Plant height (cm)	Days to first pod harvested	Length/pod (cm)	Kernels/pods	Green pod yield (q/ha)	Economic study			
							Cost of cultivation (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	BCR
1.	Kashi Uday (Local check-1)	45.15	60	9.15	9.40	84.00	80350	168000	87650	2.09
2.	Kashi Mukti (Local check-2)	45.22	60	9.30	9.46	84.60	80350	169200	88850	2.10
3.	Kashi Nandani	45.20	60	9.35	9.65	98.80	80890	197600	116710	2.44

Market value of vegetable green pods – Rs. 2000/Qtl.

Conclusion

The cultivar *Kashi Nandani* gave higher green pod yield, therefore, farming majority may be advocated for the cultivation of *Kashi Nandani* with smart agronomy and fetch better profitability.

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