

Impact of Frontline Demonstration on French Bean Variety Arka Sharath

Arunkumar, P.^{1*}, Smitha, G. B.², B. C., Hanumanthaswamy³, Rekha, M. V.⁴ and Nagaraja, R.⁵

¹Scientist (Agril. Extension), ²Scientist (Horticulture), ³Senior scientist and Head, ⁴Scientist (Soil Science),
⁵Technical Assistant,

ICAR - KVK, Shivamogga, Karnataka

*Corresponding Author E-mail: arunkumar.pssa@gmail.com

Received: 20.06.2018 | Revised: 29.07.2018 | Accepted: 6.08.2018

ABSTRACT

French bean (*Phaseolus vulgaris* L.) is the most important leguminous vegetable crop known for its short duration and nutritive values. Its production enhances soil fertility and best suitable for intercropping. The efforts have been made to conduct front line demonstrations and dissemination of pertinent knowledge to French bean growers about improved technologies (Arka Sharath). The present study ascertains impact of frontline demonstration conducted by Krishi Vigyana Kendra (KVK), Shivamogga of Karnataka on french bean variety Arka Sharath. It is a photoinensitive, stringless high yielding variety suitable for irrigated conditions. Total of 15 demonstrations were conducted in 15 farmers field in an area of 3.5 ha during 2015-16 to 2016-17. The results indicated that marked difference between Arka Sharath and local variety being adopted by farming community. Arka Sharath comes to harvest earlier than local variety. The duration to first harvest in case of Arka Sharath was 50-55 days after sowing while it was 60 days in case of local variety. In terms of number of harvest, it is more in case of Arka sharath (7) compared to control (5). The time interval between successive harvests is 8 days in case of Arka sharath and 10 days in case of local variety. In terms of pod weight, farmers expressed that pod weight is 36 percent higher in case of Arka sharath compared to local variety. The profitability in terms of B:C ratio was 3.97 in case of Arka sharath as compared to 3.33 in case of local. The significant achievement of frontline demonstration is the magnitude of technology dissemination which is to the tune of 160 acre in 2015-16 and 195 acre in 2016-17. It could be further observed that about 130 sample farmers have adopted this technology during 2015-16 and 155 during 2016-17.

Key words: Demonstration plot, Arka Sharath, Technology dissemination

INTRODUCTION

French bean (*Phaseolus vulgaris* L.) is the most important leguminous vegetable crop in India. It is also known as bush bean, common bean, dry bean, dwarf bean, green bean, haricot bean, kidney bean, navy bean, pole

bean, rajma, snap bean, string bean, tepary bean or wax bean. It is extensively being grown as an intercrop rather than sole crop. The sole constraint expressed by farmers who are intercropping french bean is low productivity.

Cite this article: Arunkumar, P., Smitha, G.B., B. C., Hanumanthaswamy, Rekha, M.V. and Nagaraja, R., Impact of Frontline Demonstration on French Bean Variety Arka Sharath, *Int. J. Pure App. Biosci.* 6(4): 324-327 (2018). doi: <http://dx.doi.org/10.18782/2320-7051.6639>

The low productivity is due to non adoption of recommended package of practices and unawareness about pest and disease resistant varieties. In this connection, it becomes crucial on the part of extension personnel to create awareness about production practices and improved technologies related to this crop. It is extensively grown because of its short duration, nutritive values, fertility enhancing capacity and suitability of intercropping in younger arecanut gardens. Beans are a large group of leguminous vegetables that serve as a main source of proteins in human diet. French bean also known as ‘meat of the poor’¹, ‘grain of hope’² and ‘Super food’³ is one of the highly relished pulse because of its rich nutritional composition. Majority of population in India being vegetarian, increased consumption of French bean will supplement their nutritional requirement¹. In southern Karnataka, French bean is extensively grown as vegetable for fresh pods, known as French bean.

The production and productivity of this crop in farmer’s field is very low due to exclusive cultivation of local varieties and non-adoption of suitable agronomic practices. The production potentiality of french bean could be exploited by the adoption of best agronomic practices and introduction of location specific high yielding varieties. Hence, the study attempts to assess impact of frontline demonstration of newly introduced variety Arka sharath over local variety in terms of pod yield and market preference.

MATERIAL AND METHODS

The present study attempts to assess impact of frontline demonstration of photo insensitive,

stringless and high yielding french bean variety Arka Sharath released from Indian Institute of Horticultural Research (IIHR), Bangalore over local variety in irrigated situation of Shivamogga. The study was conducted in sominakoppa and Aladahalli villages of shivamogga district during 2015-16 to 2016-17. In order to demonstrate the additional benefits what farmers may get through improved technologies in case of French bean, existing constraints were identified through participatory approach. The survey was conducted to elicit existing constraints. More than 70 per cent of the farmers considered for the survey belonged to the category of small farmers with average land holding of less than 1.5 ha. The farmers are also capital starved and their economic condition is very poor reflected in terms of percapita income which is below the national average. Before conducting FLD, farmers list was prepared and training on improved varieties of french bean was imparted. A total of 15 demonstrations were conducted in 15 farmers’ fields in an area of 3.5 ha. Regular field visits were made by the team of KVK scientists. The observations were recorded on green pod length, pod weight and green pod yield. Economics was also worked out and compared with farmer’s practice.

$$\text{Per cent increase in yield} = \frac{\text{Demo plot-Farmers plot}}{\text{Farmers plot}} \times 100$$

$$\text{B: C ratio} = \frac{\text{Gross return}}{\text{Gross cost}}$$

RESULTS AND DISCUSSION

Table 1: Comparison of improved French bean production practices (Variety - Arka Sharath) and farmers practices

Sl. No.	Technology	Improved production practice (Arka Sharath)	Farmers practice
1.	Seed rate (kgs/ha) for sole crop	40	55
2.	Seed rate (kgs/ha) for intercropping	20	30
3.	Seed treatment with Rhizobium	Followed	Not followed
4.	Use of improved variety	Arka Sharath	Local varieties
5.	Spacing(cm)	30x15	30x30
6.	Nutrient management (kg/ha)	63:100:75	100:50:50
7.	Integrated pest and disease management	Followed	Followed
8.	Harvesting (days)	50-55 days from sowing	60 days from sowing

9.	Pod length (cm)	18.05	15.10
10.	Pod weight (gm)	13.10	10.23
11.	Post harvest management	Sorting and grading followed	Sorting and grading not followed
12.	Cuttings (crop)	7	5
13.	Cuttings /day once	8	10
14.	1 bag/ kg weight	95	70

From the table 1 demonstration of FLDs on photo period insensitive, stringless and improved varieties of french bean variety Arka Sharath conducted during the year of 2015-16 and 2016-17 as compared to the farmers practice. It was revealed that Seed rate of Arka sharath for sole crop recommended 40 (kgs/ha) while 55 (kgs/ha) as farmers practice (Check) and Seed rate of Arka sharath for intercropping crop recommended 20 (kgs/ha) while 30 (kgs/ha) as farmers practice (Check). The duration to first harvest in case of Arka

Sharath is 50-55 days after sowing while it was 60 days in case of local variety. In terms of number of harvest, it is more in case of Arka sharath (7) compared to control (5). The time interval between successive harvests is 8 days in case of Arka sharath and 10 days in case of local variety. In terms of pod weight, farmers expressed that pod weight is 36 percent higher in case of Arka sharath compared to local variety and 95 kg weight per gunny bag in Arka sharath where as 70 kg weight per gunny bag in local practices.

Table 2: Analyse French bean yield and B: C ratio in demonstration plot and farmers plot

Year	Yield (q/ha)		Potential yield of Arka Sharath	Per cent increase over years	Extension gap	B:C	
	DP	FP				DP	FP
2015-16	204.55	193.50	200	5.71	11.50	4.50	3.90
2016-17	207.76	174.20	200	19.26	33.56	3.44	2.76
Average	206.15	183.85	200	12.48	22.53	3.97	3.33

* DP- Demonstration plot

* FP- Farmers plot

French bean variety of Arka Sharath increased yield to an extent of 5.71 per cent in the year of 2015-16 and increased yield 19.26 per cent in the year of 2016-17. Further observed that 206.15 q/ha average yield obtained where as 183.85 q/ha average yield from farmers practice. Further noted that average B:C ratio is 3.97 of Arka sharath as compared to 3.33

ratio of farmers practice. This may be due to higher average pod weight, pod length, tolerance to yellow vein mosaic (YVM) and rust in improved varieties of French bean. Favourable benefit cost ratio itself is explanatory of economic viability of the demonstration and convinced the farmers for adoption of intervention imparted.

Table 3: Technology dissemination in area, Number of farmers adopted, middle man and farmers direct contact to institution for purchase seeds (Arka Sharath)

year	Area (Acre) Technology dissemination)	Number of farmers adopted	Number of Middle man for Purchase seeds from institution	Number of farmers direct contact to institution
2015-2016	160	130	2	45
2016-2017	195	155	3	70

The results revealed in table 3, Technology dissemination of Arka sharath is 160 acre in the year 2015-16 and 195 acre in the year 2016-17. It was further revealed that 130 farmers adopted in the year of 2015-16 where as 155 farmers adopted in 2016-17. Hence,

number of Middle man act as Purchase seeds from institution 2 and 3 from 2015-16 and 2016-17, respectively. Further observed that number of farmers direct contact to institution 45 and 70 from 2015-16 and 2016-17, respectively. Compared to early years of area,

number of farmers adoption, middle man and farmers direct contact to purchase seeds from institution increased because farmers opinion on Arka sharath is good for increased yield, short duration, low cost of production, photo insensitive, stringless and YMV disease tolerant.

CONCLUSION

It is concluded that FLDs on improved variety of french bean coupled with agronomic practices significantly increased yield. Higher profitability and economic feasibility was noticed in demonstration plots apart from self satisfaction compared to the farmers practice. Compared to previous years area spread widely, large number of farmers adoption, middle man and farmers direct contact to purchase seeds from the institution increased because farmers opinion on Arka sharath was getting highest yield, short duration, YMV

disease tolerant, less cost of production, stringless and consumer preference is high.

REFERENCES

1. Singh, S.P, Improvement of small-seeded race Mesoamerican cultivars, pp 225-274. In S.P.Singh, (Eds.). Common bean Improvement in the Twenty-First century. Kluwer. Dordrecht (1999).
2. Sofi, P.A., Zargar M.Y., Debouck, D. and Grraner, A., Evaluation of common bean (*Phaseolus vulgaris* L) germplasm under temperate conditions of Kashmir valley. *Journal of phytology*. **3(8)**: 47-52 (2011).
3. Saleh, S., Shleel, S.M.A. and Hadid, A.F.A., Prediction and adoption of dry bean yield under climate change conditions. *Research Journal of Agrilclimate and Biological Sciences*. **8(2)**: 147-153 (2012).