

**RESEARCH ARTICLE :**

# Impact of frontline demonstrations on the yield and economic of pea in West Kameng district Arunachal Pradesh

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**SUMMARY :** The study was carried out during 2014 to 2017 at farmers field of dirang, West Kameng district of Arunachal Pradesh. The front line demonstration on pea crop of seed was conducted on an area 18 ha for each variety with active participation of 40 farmers with improved technologies of VRP-22, Arkel and Azad P1. The results revealed that maximum yield 23.0q/ha with an increase over variety Arkel and Azad P1. Improved technology of pea recorded progressively increased average yield 20q/ha during Three years of study, and minimum to maximum yield found 17.0q/ha to 23.0 q/ha. The extension gap can be bridged by popularizing package of practices of pea including improved variety (VRP-22), use of optimum seed rate, balanced nutrition and recommended plant protection measures. Improved technologies gave higher net return of Rs. 40,000/ha with benefit cost ratio 2.43 as compared to Azad P1 (Rs.29,800/- benefit cost ratio 2.06) and Arkel (Rs.1.94/-benefit cost ratio 1.94).

**KEY WORDS :**

Pea, Yield, Improved technology, Benefit cost ratio

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## **BACKGROUND AND OBJECTIVES**

Pea (*Pisum sativum*) is a predominantly Rabi crop of West Kameng district of Arunachal Pradesh. The available agricultural technology does not serve its purpose till it reaches and adopted by its ultimate users, the farmers. Technology transfer refers to the spread of new ideas from originating sources to ultimate users (Prasad *et al.*, 1987). Pea is predominantly cultivated in West Kameng district of Arunachal Pradesh in maize- pea, pea-maize cropping systems. This rapid growth under area of pea in Arunachal

Pradesh, particularly in West Kameng district was possible through development, up-gradation and dissemination of the technology under real farming conditions. There is ample scope for further improvement of production and productivity of pea for raising the income level of the farming community of the district. With an object to combat the causes of yield erosion and lower economic returns, dissemination of recommended technology through front line demonstration was successfully attempted.

This crop area and production is very less

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in district. However, the considerable scope of enhancement to higher production exists, especially in West Kameng region, which is ear marked as important Agro Export Zone for pea in the country. It is feasible through regular surveys, farmers meetings and field diagnostics visit followed by persuasion for provision of balanced and adequate nutrition and timely management of water in pea and balanced use of organic manure, by conducting front line demonstration of proven technologies, yield potential and net income from pea cultivation can be enhanced to a great extent with increase in the income level of the farming community.

## RESOURCES AND METHODS

Front line demonstration on pea, three variety were conducted by our Krishi Vigyan Kendra, West Kameng has conducted 40 front line demonstration under real farming situations between year 2014 to 2017 at four different villages, namely Sangti, Dirangbasti, Yewang and Rama camp. The area under each demonstration was 18 ha. Through survey, farmers meeting and field diagnostic visit during the cropping period, low yield of pea was conceived due to imbalanced use of fertilizer and indiscriminate practice to manage the powdery mildew on pea. Tomanage assessed problem, improved and recommended technologies were followed as intervention during the course of front line demonstrations programme. Well before the conduct of demonstrations, training to the farmers of respective villages was imparted with respect to envisaged technological interventions. All other steps like site and farmer selection, layout of

demonstration, farmer's participation etc were followed as suggested by Choudhary (1999). Visits of the farmers and the extension functionaries were organized at demonstration plots to disseminate the message at large.

## OBSERVATIONS AND ANALYSIS

The sowing of all the three varieties was performed in the 2<sup>nd</sup> week of November. The average soil moisture content at sowing time and good germination of the crop. The data in Table 1 show the FLD and it was noticed that pea variety VRP-22, Arkel and Azad P1 guidance of KVK scientist. The seeds were taken from IIVR, Varansi U.P. and some private agencies and provided farmers under front line demonstration by KVK along with seeds are already treated by fungicides, timely sowing and weeds control by mechanical.

Yield data was collected from demonstration plots plant height, pods length, pods per plant, No. of seeds per plant etc. were computed and analyzed. The data (Table 1) revealed that plant height was significantly higher in VRP-22 (50 cm) compared to Azad P1 (48 cm) and Arkel (45 cm). The pods length was significantly is higher 10 cm in VRP-22 compared to Azad P (8 cm) and Arkel (7 cm), highest number of pods per plant was significantly higher in VRP-22(16) compared to Azad P1 (12) and Arkel (10), the maximum number of seeds was significantly higher in variety VRP-22 (10) compared to Arkel (9) and Azad P1 (8), The average seed yield was recorded significantly variety VRP-22 (22q/ha) compared to Azad P1 (17q/ha) and Arkel variety (16q/ha).

**Table 1: Yield attributes obtained under demonstration in pea year (2014 to 2017)**

Crop (Variety)	Plant height (cm)	Pods length (cm)	Pods per plant	No. of seeds per pod	Additional data on demo. seed yield (q/ha)		Avg. seed yield (q/ha)
					Highest	lowest	
VRP-22	50	10	16	10	23.0	17.0	20
Arkel	45	7	10	9	19.5	12.5	16
Azad P1	48	8	12	8	21.0	13.5	17
C.D. (P=0.05)	3.58	2.07	4.14	1.31	2.36	3.46	2.62

**Table 2 : Economic of pea cultivation under FLD in year (2014 to 2017)**

Crop	Variety	Economic of demonstration (Rs./ha)			Benefit cost ratio
		Gross cost	Gross return	Net return	
Pea	VRP-22	28,000	68,000	40,000	2.43
	Arkel	28,000	54,000	26,400	1.94
	Azad P1	28,000	57,800	29,800	2.06
	C.D. (P=0.05)		-	7105	1328

The economic indicators *i.e.* gross expenditure, gross returns, net returns and BC ratio of front line demonstrations are presented in Table 2.

The economics of pea calculated in three variety, I have found gross cost of is same in three variety Rs. 28,000/-, gross return Rs. 54,000/- in VRP-22 variety, Azad P1 Rs. 57,800/- and Arkel variety of pea Rs. 54,000/- . The net return calculated I have found significantly more return in VRP-22 variety Rs. 40,000/-, compared to Azad P1 found Rs. 29,800/- and Arkel variety net return found Rs. 26,400/- and benefit cost ratio found 2.43 in VRP-22 followed by 2.06 in Azad P1 and Arkel variety of pea 1.94.

The data clearly revealed that, the net returns from the recommended practice were substantially higher than others variety of pea, i during all the years of demonstration. Economic analysis of the yield performance revealed that cost benefit ratio of demonstration plots were observed significantly higher than others variety of pea plots. The variation in cost benefit ratio during different years may mainly be on account of yield performance and input out put cost in that particular year. Similar work related to the present investigation was also conducted by Kirar *et al.* (2006); Raj *et al.* (2013); Singh (2002) and Tomar *et al.* (1991).

### Conclusion:

Front line demonstration conducted under the close supervision of scientist is one of the most important tools of extension to demonstration crop management practices at farmers field. FLDs are playing important role in motivating the farmers for adoption of improved agriculture technology resulting in increasing their yield and profits. Keeping in view of importance in transfer of technology, FLDs should be designed and conducted carefully and effectively and provisions should be made for other supportive extension activity such as field days, technical trainings, interaction meeting etc. The production under FLDs created awareness and motivated the other farmers to adopted cultivation of pea variety VRP-22 (Kashimukti) during *Rabi* season particularly

in the Dirang area district West Kameng Arunachal Pradesh. The results of front line demonstrations convincingly brought out that the yield of pea variety VRP-22 (Kashi Mukti) could be increased by 66.67 per cent followed by Azad P1 variety 41.67 per cent and Arkel variety 33.33 per cent with the intervention on balanced nutrition coupled with the disease management in the West Kameng region of A.P. favourable cost benefit ratio is self explanatory of economic viability of the demonstration and convinced the farmers for adoption of intervention imparted. The technology suitable for enhancing the productivity of Pea crop VRP-22 and calls for conduct of such demonstrations under the transfer of technology programme by KVKs.

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