



Research Article

Production potential and economics of improved production practices on rainfed sesamum under real farm situation

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SUMMARY : The productivity of sesamum is to be quite low due to technological gap in adoption of improved technology. The yield gap between farmers' field and potential yield can effectively bridge by conducting front line demonstrations (FLD) on farmers field. The oilseed Research Station, Jalgaon conducted 31 FLDs during 2007-2011 to analyze impact of improved production technology on farmers field. The result revealed that, sesamum yield increased at an average of 25.44 per cent and received additional net monetary return of Rs 4066 on ha basis by the adoption of improved production technology.

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KEY WORDS:

Sesamum, Improved practices, FLD, Economics

BACKGROUND AND OBJECTIVES

Sesamum (*Sesamum indicum*) is one of the major oilseed crop and referred as queen of oilseed crop because of its good oil quality, having many anti nutritional factors. In Maharashtra, sesamum is cultivated on 52600 ha with production of 18900 tones and productivity of 360 kg/ha in *Kharif* season (Anonymous, 2012). The low productivity in the state is mainly due to fact that, it suffers from erratic rain and stresses (drought and waterlogged condition) as well as non adoption of improved package of practices. Kalarani *et al.* (2010) reported that crops yield potential can be increased to great extend by conducting effective front line demonstration with proven technology. Keeping this in view, oilseed research station, Jalgaon conducted front line demonstration on farmers field with improve package of practices at different tahsils of Jalgaon district.

by the farmer. As an extension activity, this institute laid out the 31 Front Line Demonstrations (FLD s) on sesamum during *Kharif* 2007-2011 at different location of Jalgaon districts (Table A). These demonstrations of improved production technology were taken on area of 0.4 ha of each farmer. Simultaneously, one control plot was also kept where farmers practice was carried out. Crop was grown under rainfed situation on medium to deep soil. The details pertaining to improved practices through demonstration and farmers practices are given in Table B.

Interested sesamum growers were selected in consultation with agriculture officer and member of Shetkari Shastradya Manch of the centre. The selected farmer imparted pre demonstration training through off campus mode to import knowledge about improved production technology. The demonstration were regularly supervised by team of scientist containing principle scientist ORS, Jalgaon, agronomist, entomologist and scientist from AICRP on sesamum and niger, JNKVV campus, Jabalpur. The primary data were collected from selected FLD farmer with the help of interview schedule, interpreted and presented in Table 1.

RESOURCES AND METHODS

Oilseed research station, Jalgaon as groundnut and sesamum as major crop on which research and development activities are formulated and implemented. Several need base and location specific technologies are developed and adopted

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Table A: Details of front line demonstration organised under rainfed situation

Year	Location (Tahsil)	No. of FLD organized		
		Successful	vitiated	Total
2007	Jalgaon	03	03	06
2008	Jalgaon, yawal, Bhusawal, Erandol, Chopda	05	04	09
2009	Jalgaon, yawal, Chopda	07	-	07
2010	Jalgaon yawal, Bhusawal, Chopda, Amalner	06	-	06
2011	Jalgaon yawal, Erandol, Chopda, jamner, Dharangaom	10	-	10
Total		31	07	38

Table B : Difference between Demonstration practices and farmers practices

Sr. No.	Particulars	Demonstration practice	Farmers practice
1.	Variety	JLT-7	local
2.	Seed rate	2.5 kg/ha	4-5 kg/ha
3.	Seed Treatment	Bavistin @ 3gm/kg	No seed treatment
4.	Culture Treatment	<i>Azotobactor</i> and PSB @ each 25 gm/kg	No culture treatment
5.	Soil water conservation practices	Formation of furrow with desi plough at interval of 12 rows across the slope	No such practice
6.	Thinning	Needbase, within 3 week after planting	No thinning
7.	Fertiliser dose	Neem cake (1ton/ha) with 50 kg N and 20 kg S	Not applied
8.	Plant protection	Needbase insecticidal and fungocidal spray	Spraying after heavy infestation of pest and diseases

OBSERVATIONS AND ANALYSIS

The seed yield increased from 20 to 30 per cent under real farm situation (Table 1). Average yield level in demonstration plot varied from 441 to 682 kg/ha and 342 to 553 kg/ha in farmers field. Due to formation of furrow with *desi* plough at an interval of 12 rows, excess water was drained out under heavy rainfall situation, where as conserve the rain water under deficient rainfall condition. This prevent sensitive seedling stage of sesamum from waterlogged as well as stress condition. Sowing seed at optimum seed rate and maintenance of optimum plant population not only reduce the cost of cultivation but also increased the production. The integrated nutrient management approach favours the crop growth and enhance yield. (Barik and Fulmali, 2011). Beside these, need based chemical spray kept population of pest and diseases

below ETL level. Controlling thrips at early stage prevent crop from viral disease like Phyllody of sesamum. Thus, at an average of 25.44 per cent increased in yield was observed by adoption of improved package of practices. By bridging such extension gap, state could able to achieve production to the tune of 24000 tones with current production level.

Economic analysis of the data revealed that, though the cost of cultivation of improved practice was slightly higher over farmers method, mean gross monetary return (Rs 28607.8/ha), and B : C ratio (2.19) were found to be maximum under rainfed sesamum. Further it was also observed that, additional net monetary return over farmers practice ranges from Rs 3385 to 4945 per hectare during 2007-11. At an average, there has to increase in additional net monetary return of Rs 4065 /ha, which indicate economic viability of demonstration of improved practices for farmers of Jalgaon district.

Table 1 : Productivity and economics of sesamum under real farm situation

Year	No. of Demo.	Mean seed yield (kg/ha)		Increased yield (%) over farmers field	Cost of cultivation (Rs/ha)		Gross monetary return (Rs/ha)		Additional net return (Rs/ha) Over farmers practice	B:C ratio	
		Demo plot	Farmer plot		Demo plot	Farmer plot	Demo plot	Farmer plot		Demo plot	Farmer plot
2007	03	682	553	23.32	11362	10770	21132	17153	3385	1.86	1.59
2008	05	441	342	28.94	10640	9608	22050	17100	3918	2.07	1.78
2009	07	559	430	30.00	12162	10942	28687	23786	3680	2.36	2.17
2010	06	659	545	20.91	14501	13121	36254	29975	4945	2.5	2.28
2011	10	614	495	24.04	16091	14463	34916	27880	4401	2.17	1.92
Mean		591	473	25.44	12591.6	11780.8	28607.8	23178.8	4065.5	2.19	1.95

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