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## Impact Analysis of Front-Line Demonstrations (FLDs) on Sesame (*Sesamum Indicum*) in Eastern Uttar Pradesh Region

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### ABSTRACT:

Front Line Demonstrations (FLDs) on Sesame (*Sesamum indicum*) was conducted in Ten villages namely; Saah, Gajipur, Hansnagar, Naugaon, Vilashpur, Prempur, Gangoli, Kursom, Dawatpur and Balaipur of four Districts namely; Kanpur Nagar, Kanpur Dehat, Unnao and Fatehpur during *Kharif*-2021. Total 20 farmers were selected on the basis of their socio-economic conditions. The main objective of the FLDs to improve the socio-economic condition of the marginal farmers, increasing the Sesame (*Sesamum indicum*) cultivated area during *Kharif* season in Eastern Uttar Pradesh region and also utilization of the *Kharif* fellow land for cultivation of maize crop. The results revealed that farmers were benefitted from the FLDs practice in comparison to their own traditional practices. The average yield production of Sesame from farmers practices and from FLDs practices was 4.30 quintals per hectare and 7.40 quintals per hectare, respectively.

**Key words:** *Front Line Demonstrations (FLDs), Kharif & Sesame.*

### INTRODUCTION:

The sesame plant likely originated in Asia or East Africa, and ancient Egyptians are known to have used the ground seed as grain flour. The seeds were used by the Chinese at least 5,000 years ago, and for centuries they have burned the oil to make soot for the finest Chinese ink blocks. The Romans ground sesame seeds with cumin to make a pasty

spread for bread. Once it was thought to have mystical powers, and sesame still retains a magical quality, as shown in the expression “open sesame,” from the Arabian Nights tale of “Ali Baba and the Forty Thieves.” Sesame oil is used as a salad oil or cooking oil, in shortening and margarine, and in the manufacture of soaps, pharmaceuticals, and lubricants. Sesame oil is used as an ingredient in cosmetics. The press cake remaining after the oil is expressed is highly nutritious. The whole seed is used extensively in the cuisines of the Middle East and Asia. Halvah is a confection made of crushed and sweetened sesame seeds. In Europe and North America the seeds are used to flavour and garnish various foods, particularly breads and other baked goods. Depending on conditions, sesame varieties grow from about 0.5 to 2.5 metres (2 to 9 feet) tall; some have branches, others do not. One to three flowers appear in the leaf axils. The hulled seeds are creamy or pearly white and about 3 mm (0.1 inch) long and have a flattened pear shape. The seed capsules open when dry, allowing the seed to scatter. Considerable hand labour is needed in harvesting to prevent loss of the seeds. With the development of a non-scattering variety of the plant in the mid-20th century, mechanized harvesting of the crop was made possible. The essential oil content is about 5 percent; d-carvone and d-limonene are the principal components.

## METHODOLOGY:

### About FLDs on Sesame (*Sesamum indicum*):

Front Line Demonstrations (FLDs) on Sesame conducted in Ten villages namely; Saah, Gajipur, Hansnagar, Naugaon, Vilashpur, Prempur, Gangoli, Kursom, Dawatpur and Balaipur of four Districts namely; Kanpur Nagar, Kanpur Dehat, Unnao and Fatehpur of Uttar Pradesh in eastern region during *Kharif*-2021 funded by Project Coordinator (Sesame & Niger), Jawaharlal Nehru Agricultural University campus, Jabalpur-482 004 (M.P.), India. The FLDs techniques was used as “*Improved varieties vs. Commercial cultivars (local check)*”. The complete details are given as below in table-1.

**Table-1: Details of the FLDs on *Kharif* Sesame (*Sesamum indicum*) during-2022**

S.No.	Details	Quantity to be used
1.	Total number of FLDs conducted	20 FLDs
2.	Total area covered (1 ha. for 1 FLDs)	20 ha.
3.	Hybrids/variety used to conduct FLDs on Sesame	Pragati, RT-351

**1. Selection of the farmers:** Total 20 marginal farmers were selected on the basis of their socio-economic conditions and also on the basis of their own choice for conducted Front Line Demonstrations (FLDs) on Sesame (*Sesamum indicum*) during Rabi-2021 in Eastern Uttar Pradesh region for maximize the production and double your income as per the suggestions of our Hon'ble Prime Minister Shri Narendra Modi Ji. The details are given as below in table-2.

1.	Name of the Center/ Institute	:	C.S.A University of Agril. & Tech., Kanpur
2.	Total no. of the FLDs sanctioned in the workshop	:	<b>20</b>
3.	Total no. of the FLDs actually conducted	:	<b>20</b>
4.	Name of Crop	:	Sesame
5.	Types of FLDs with numbers	:	Full packaged: <b>20</b>
6.	Name of demonstrated varieties	:	<b>Pragati, RT-351</b>
7.	Situation : Rainfed/ irrigated and Normal sown/ late sown	:	<b>Irrigated Normal sown</b>
8.	Total no. and name of the villages covered	:	(10) Saah, Gajipur, Hansnagar, Naugaon, Vilashpur, Prempur, Gangoli, Kursom, Dawatpur and Balaipur.
9.	Total no. and name of the district(s) covered	:	(04) Kanpur Nagar, Kanpur Dehat, Unnao and Fatehpur.
10.	Cropping systems prevailing in the demonstration area	:	i) Wheat – Moong - Sesame
11.	Date of sowing(range)	:	26.06.2021 to 11.07.2021
12.	Date of harvesting (range)	:	28.09.2021 to 10.10.2021
13.	Specify pests and disease situations	:	Bihari hair caterpillar
14.	Farmer's opinion about the improved technology (Feedbacks)	:	Satisfied with variety and technology
15.	Remarks of the Scientists involved in the demonstration	:	Very Good and Team was satisfied with all the FLDs.
16.			
17.	Details of the Field Days/Kisan Mela/ training related to the demonstration	:	A two days training programme of 20 Extension personals was held on 11-12, March 2022 at Directorate of Extension, C.S.A. Uni. Of Agri. & Tech. Kanpur.
18.	Constraints being faced in conducting demonstration	:	<b>Nil</b>
19.	<b>Details of the demonstrated improved technology and farmers practice/ indigenous Technical:</b>		
	<b>Components of demonstrated technology:</b>	∴	<b>Prevailing farmers practices against demonstrated technology-</b>

	<b>Full package</b>		Farmers are being adopted conventional method to grow the crop like seed of old variety, broadcasting method of seed sowing and fertilizer application, no thinning and not plant protection massers adopted.
20.	Any other observation	:	Farmers were happy with new variety seed and fully satisfied with new technologies for cultivation of frontline demonstrations

### 1. Features of hybrids/varieties & seed distribution programme:

Two high yielding varieties/hybrids namely; Pragati and RT-351 were used for distribution of seed under FLDs on Sesame (*sesamum indicum*) during *Kharif*-2021 in Eastern Uttar Pradesh region. All the varieties/hybrids are suitable for growing in this region, because these varieties/hybrids were released for zone-III. The average yield of these varieties/hybrids are 7.50 q/ha. and mature in medium duration. Farmers were used a local commercial cultivar for grain production of Sesame.

**Table-1: Weather parameter during Crop Standing under FLDs**

Weather Parameter	July,2021	Aug. 2021	Sep. 2021	Oct. 2021
Rainfall (mm)	349.3	186.0	190.9	144.8
No. of Rainy days.	12	6	7	3
Max. Temp. °C	34.9	33.1	32.9	32.7
Min. Temp. °C	26.7	26.7	26.0	21.3
Sun Shine Hours	4.9	3.6	3.1	6.7
Relative Humidity Max.(%)	82	86	87	86
Relative Humidity Min.(%)	65	69	69	51

### RESULTS & DISCUSSION:

- 1. Crop stand:** The results were revealed that the performance of crop stand was good with healthy crops. The number of primary branches per plant, number of capsules per plant, number of seeds per capsules was recorded in significant amount.
- 2. Details of the yield from FP & FLDs practices:** The average yield production of *Kharif* Sesame (*Sesamum indicum*) were recorded 4.30 quintals per hectare and 7.50 quintals per hectare, respectively from farmers and FLDs practices. The average net returns (Rs/ha) of *Kharif* Sesame (*Sesamum indicum*) were recorded 10,040 Rs/ha and 26,152 Rs/ha, respectively from farmers & FLDs practices. The average cost of

production of *Kharif Sesame (Sesamum indicum)* were recorded 21,780 Rs/ha and 27,920 Rs/ha, respectively for both farmers & FLDs practices.

- 3. Differences between FP & FLDs practices:** The significant differences were recorded from farmers practices and FLDs practices in several points such as variety, seed rate, seed treatment, time of sowing, method of sowing, fertilizers management, water management, plant protection, threshing, harvesting & marketing, etc. The details are given as below in table 8.

S. No.	Particulars	Technology Interventions	Farmer's practices
1	Variety	Pragati and RT-351	Local variety
2	Seed rate	1.5-2 kg/ha.	2-3 kg/ha.
3	Seed treatment	√	X
4	Time of sowing	03/07/2021	05/08/2021
5	Method of sowing	Line sowing	Broad caste
6	Fertilizer management	√	√
7	Water management	√	√
8	Plant protection	X	√
9	Threshing	√	√
10	Harvesting	√	√
11	Storage	X	√
12	Marketing	Local market	Local market

- 4. Farmers Training under Front Line Demonstrations (FLDs) on *Kharif Sesame (Sesamum indicum)* in Eastern region of Uttar Pradesh:** Total 10 farmers trainings has been conducted in 10 selected villages. 50 farmers were benefitted from each villages & total 500 farmers were benefitted from the training programme during *Rabi*, 2021.

#### SUMMARY & CONCLUSION:

The Farmers with or without resources keep their land fallow in *Kharif* and cultivate Urd Bean, Moong Bean, Pigeon pea & Paddy in *Kharif*. Here we found Sesame a promise crop to increase Cropping intensity in Eastern region of Uttar Pradesh. With majority of Scheduled Castes population / marginal farmers living in villages under studied area were economically isolated. Those were below poverty line and their livelihood dependent solely on agriculture and livestock rearing the SCSP Plan.

**Table-4: Frontline demonstrations of Sesame conducted during *kharif* season 2021**

S. No.	Name & Address of the farmers	Area (ha.)	Grain Yield (Kg/ha.)			Gross return (Rs/ha.)		Cost of cultivation (Rs/ha.)		Net Returns (Rs/ha)	
			Variety	Improved Practice(IP) Yield (Kg/ha)	Farmers Practice(FP) Yield (Kg/ha)	IP	FP	IP	FP	IP	FP
1.	Sri. Gaya Prasad Vill- Saah Block- Harchand Khera Distt- Kanpur Nagar.	0.4	RT-351	740	430	54072	31420	27920	21780	26152	10040
2.	Sri. Pavan Kumar Vill-Saah Block- Harchand Khera Distt- Kanpur Nagar.	0.4	RT-351	700	420	51149	30689	27920	21780	23229	8909
3.	Sri. Sanjay Singh Vill- 130 Gajipur Block- Gajipur Distt- Kanpur Nagar.	0.4	Pragati	735	490	53706	35804	27920	21780	25786	14024
4.	Sri. Radhe Shyam Yadav Vill-344/4 Shastri Nagar, Hansh Nagar Distt- Kanpur Nagar	0.4	RT-351	750	440	54802	32151	27920	21780	26882	10371
5.	Sri. Suraj Prasad Vill- Naugaon Block- Lalpur Distt- Kanpur Dehat.	0.4	RT-351	780	460	56995	33612	27920	21780	29075	11832
6.	Sri. Dharmendra Kumar Vill- Vilashpur Block- Sikandra Distt- Kanpur Dehat.	0.4	Pragati	620	425	45303	31055	27920	21780	17383	9275
7.	Sri. RamKishor	0.4	RT-351	790	430	57725	31420	27920	21780	29805	9640

	Vill- Prempur Block- Amroandha Distt- Kanpur Dehat.										
8.	Sri. Raj Narain Vill- Prempur Block- Amroandha Distt- Kanpur Dehat.	0.4	RT-351	770	520	56264	37996	27920	21780	28344	16216
9.	Smt. Sunita Devi Vill- Prempur Block- Amroandha Distt- Kanpur Dehat.	0.4	Pragati	650	500	47496	36535	27920	21780	19576	14755
10.	Smt. Praveen Kumar Vill- Prempur Block- Amroandha Distt- Kanpur Dehat	0.4	Pragati	640	495	46765	36170	27920	21780	18845	14390
11.	Sri. Pratap Singh Vill- Gangoli Block- Sikendrapur Sirosi Distt- Unnao.	0.4	Pragati	620	480	45303	35074	27920	21780	17383	13294
12.	Sri. Uday Prakash Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	Pragati	660	490	48226	35804	27920	21780	20306	14024
13.	Sri. Jai Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	Pragati	590	485	43111	35439	27920	21780	15191	13653
14.	Sri. Bajrang Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	Pragati	575	440	42015	32151	27920	21780	14095	10371



15.	Sri. Akhilesh Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	RT-351	700	415	51149	30324	27920	21780	23229	8544
16.	Sri. Ram Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	RT-351	725	430	52976	31420	27920	21780	25056	9640
17.	Sri. Anil Kumar Singh Vill- Kursam Block- Malwa Distt- Fatehpur.	0.4	RT-351	750	460	54802	33612	27920	21780	26882	11832
18.	Smt. Gyanwati Pandey Vill- Dawatpur Block- Dawatpur Distt- Fatehpur.	0.4	Pragati	665	480	48592	35074	27920	21780	20672	13294
19.	Sri. Umesh Chand Vill- Dawatpur Block- Dawatpur Distt- Fatehpur.	0.4	Pragati	670	500	48957	36535	27920	21780	21037	14755
20.	Sri. Brijesh Kumar Vill- Balaipur Block- Balaipur Distt- Fatehpur.	0.4	Pragati	680	515	49688	37631	27920	21780	21768	15510

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