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Socio-economic analysis of mustard growers in Samba district of Jammu and Kashmir (UT)

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Abstract

A comprehensive investigation was undertaken in 2020-2021 in the Samba district of the Jammu region, Jammu and Kashmir (Union Territory), employing an ex-post facto study design. The primary objective was to discern the socio-economic characteristics of the mustard cultivators. Utilizing a multistage sampling methodology, a total of 120 mustard growers (60 beneficiary and 60 non-beneficiary farmers) constituted the study sample. The results indicate that a substantial proportion of respondents (52% beneficiary) and (32% non-beneficiary) fall within the middle-age category, holding matriculation level education (63% beneficiary) and (54% non-beneficiary). The majority of equal per cent of respondents (83% beneficiary as well as non-beneficiary) reside in nuclear family setups and agriculture emerges as the predominant occupation (59% for beneficiary and 68% non-beneficiary). The majority of mustard growers both beneficiary and non-beneficiary in the study area have marginal farm sizes, primarily irrigated using canal water. While several critical information sources were conveniently located near the study area, including the input stores, market and access to others such as the SAU, KVK and the agriculture office was more distant. Respondents occasionally sought information from nearby sources in their villages.

Keywords: Mustard growers, socio-economic characteristics, beneficiary, non-beneficiary

1. Introduction

Oilseeds and edible oils are vital commodities in India, widely used across various industries and making a significant contribution to the country's agricultural sector and export markets (Pundlikrao, 2012) ^[11]. India is a major global producer of oilseeds, with an estimated annual production of 36.56 million tonnes (Anonymous, 2021) ^[3]. Mustard is a key crop, accounting for 27.8% of India's oilseed production, second only to groundnut, and is predominantly grown during the rabi season (Anonymous, 2004) ^[2]. In Jammu and Kashmir (J&K), mustard is cultivated across 55,236 hectares, with around 27,000 hectares in the Jammu region, which experiences both temperate and subtropical climates. To improve mustard and other oilseed yields, farmers need to adopt effective agricultural practices, such as choosing high-yielding, disease-resistant varieties, using appropriate crop rotation, ensuring timely planting, maintaining balanced nutrition, and applying effective pest and weed control. Despite the potential of advanced agricultural technologies to enhance crop yields and farmers' livelihoods, many farmers remain unaware of these innovations due to their high costs and limited access. To address this issue, the Indian Council of Agricultural Research (ICAR) established Krishi Vigyan Kendras (KVKs) to provide vocational training and promote modern farming techniques. In Jammu and Kashmir, 17 KVKs have been set up, with seven managed by the Sher-e-Kashmir University of Agricultural Sciences and

Technology of Jammu (SKUAST-J). These centres focus on offering training and awareness programs to demonstrate new agricultural technologies. A key initiative of KVKs is the Frontline Demonstration (FLD) program, designed to promote the adoption of proven technologies by farmers. FLDs are implemented directly on farmers' fields with guidance from agricultural experts to show the effectiveness of modern practices. The ongoing research on cluster frontline demonstrations conducted by KVK Samba on mustard production during the rabi season aims to assess their impact on yields and the livelihoods of local farmers. Therefore, the study titled "Impact assessment of the KVK cluster frontline demonstrations on Mustard Crop" will evaluate the influence of KVK activities on mustard production.

2. Materials and Methods

The study was conducted in Samba district of Jammu region, Jammu and Kashmir in 2020-2021. The study employed an ex-post facto design and a multistage sampling method. Firstly, Samba district was selected purposively for the study because KVK Samba has laid maximum number of FLDs on mustard under its Cluster FLDs programme for the year 2019-20 as compared to other KVKs of Jammu division. A list of 166 mustard growing beneficiaries was procured from KVK Samba. Out of the available list, 60 number of mustard growing beneficiary were selected by using random sampling technique. Equal number of non-

beneficiary mustard growing farmers were also selected from the representative/adjoining villages. By this way total sample size was comprised of 60 beneficiary and 60 non-beneficiary mustard growing farmers of KVK Samba. A questionnaire with both open and closed-ended questions was developed and pre-tested to ensure clarity and eliminate testing biases in a non-sampled area.

2.1 Percentage

The frequency of a specific cell was determined by dividing it by the total number of respondents in that category and then multiplying the result by 100.

$$\text{Percentage} = \frac{\text{Actual no. of respondents}}{\text{Total no of Respondents or Score}} * 100$$

2.2 Frequency

The calculation involved summing up the total number of respondents within each specific category.

2.3 Mean

It was calculated to the average value of particular score. The formula is given below-

$$\text{Mean score} = \frac{\text{Total scores on particular item}}{\text{Number of respondents}}$$

2.4 Categorization

The categorization of respondents into different groups based on age and education utilized the cube root method, as outlined by Singh (1975) [12].

3. Results and Discussion

Analyzing the socio-economic attributes of the sampled households provides insights into the foundational information of farmers. The data reveals a nearly 52 per cent of beneficiaries and 32 per cent of non-beneficiaries falling within the age range of 47 to 62 years, 20 per cent beneficiaries and 40 per cent non-beneficiaries below 47 years, and 28 per cent beneficiaries and 28 per cent non-beneficiaries above 62 years, aligning with the study of Indumathy *et al.* (2013) [4] and Mohan *et al.* (2012) [8]. A significant majority of farmers (90% beneficiaries and 92 per cent non-beneficiaries) were literate, contrasting with a mere 10% beneficiaries and 8 per cent non-beneficiaries classified as illiterate. Educational backgrounds exhibited diversity with 63 per cent beneficiaries and 54 per cent non-beneficiaries having matriculation-level education, 12 per cent beneficiaries and 13 per cent non-beneficiaries completing 10+2, 13 per cent beneficiaries and 20 per cent non-beneficiaries at the middle level and zero per cent for both at the primary level, only a small proportion (2% beneficiaries and 5% non-beneficiaries) pursued education beyond graduation, aligning with existing findings of Nataraju *et al.* (2013) [9], Sulaja *et al.* (2013) [13]. In terms of phone connectivity, 98 per cent of beneficiaries and 95 per cent of non-beneficiaries possessed mobile phones with 35 per cent beneficiaries and 49 per cent non-beneficiaries owning smartphones and 65 per cent beneficiaries and 51 per cent non-beneficiaries using feature phones, consistent with previous research of Kumar (2019) [6]. Regarding family structure, 17 per cent of sampled beneficiaries and

non-beneficiaries households were joint families, while 83 per cent of both the beneficiaries and non-beneficiaries were nuclear families (Nataraju *et al.* (2013) [9]. Family size predominantly comprised medium households (50% of beneficiaries and 55% of non-beneficiaries with 5-8 members), followed by small-sized families (33% beneficiaries and 38% non-beneficiaries with 3-5 members) and larger families (17% beneficiaries and 7% non-beneficiaries with 8-14 members), echoing findings reported by Kumar (2012) [5]. A proportion of (59% beneficiaries and 68% non-beneficiaries) were engaged solely in agriculture as their primary occupation (Mandloi (2007) [7] and Kumar *et al.* (2019) [6]. Additionally, 30 per cent of beneficiaries and 17 per cent of non-beneficiaries were involved in both agriculture and govt. ret'd, 5 per cent each for both in agriculture and service, 3 per cent beneficiaries and 7 per cent non-beneficiaries in agriculture and private job and 3 per cent beneficiaries in agriculture and business aligned with the study of Pathania (2017) [10]. Landholding sizes varied with majority of farmers (58% for both beneficiaries and non-beneficiaries) categorized as marginal (less than one hectare), 34 per cent beneficiaries and 30 per cent non-beneficiaries as small (1-2 ha), 8 per cent beneficiaries and 12 per cent non-beneficiaries as semi-medium (2-4 ha) aligned with the study of Ahmed (2015) [11].

Table 1: Socio-economic characteristics of the sampled households

Parameters	Beneficiary (n=60)	Non-beneficiary (n=60)
Age of farmers		
Young (47 years and below)	12(20)	24(40)
Middle (47-62 years)	31(52)	19(32)
Old (62 years and above)	17(28)	17(28)
Educational status of the farmers		
Illiterate	6(10)	5(8)
Middle	8(13)	12(20)
Matriculate	38(63)	32(54)
12 th	7(12)	8(13)
Graduation	1(2)	3(5)
Phone connection availability		
Android Phone	21(35)	28(49)
Feature phone	38(65)	29(51)
Family Type		
Joint families	10(17)	10(17)
Nuclear families	50(83)	50(83)
Family size category		
Small family (3-5 members)	20(33)	23(38)
Medium family (5-8 members)	30(50)	33(55)
Large family (8-14 members)	10(17)	4(7)
Occupation of the respondents		
Sole Agriculture	35(59)	41(68)
Agriculture +Govt.Retd.	18(30)	10(17)
Agriculture + Govt.job	3(5)	3(5)
Agriculture + Private job	2(3)	4(7)
Agriculture + Business/shop	2(3)	0
Agriculture + Any other	0	2(3)
Categorization of farm size		
Marginal (< 1 ha)	35(58)	35(58)
Small (1-2 ha)	20(34)	18(30)
Semi Medium (2-4 ha)	5(8)	7(12)

Figures in parentheses are the percentages and rounded off

Canal water emerged as the predominant irrigation source,

utilized by 64 per cent of beneficiaries and 50 per cent of non-beneficiaries as shown in Table 2, while 17 percent of beneficiaries and 25 per cent non-beneficiaries exclusively used bore wells and 17 percent beneficiaries and 25 per cent non-beneficiaries solely employed electric pump set for irrigation, aligning with findings of Pathania (2017)^[10].

Table 2: Distribution of respondents based on source of irrigation

Source of Irrigation	Beneficiary (n=60)	Non-Beneficiary (n=60)
Canal	38(64)	30(50)
Bore well	10(17)	15(25)
Electric pump set	10(17)	15(25)
Diesel pump set	1(2)	0

Figures in parentheses are the percentages and are rounded off

The findings presented in Table 3 illustrate the mean distances between respondent villages and various agriculturally significant locations. The maximum average distance from the respondents' villages to the market was 4.06 (± 2.34) km for beneficiaries and 5.09 (± 2.39) km for non-beneficiaries, followed by 5.37 (± 2.82) km to the input dealer store for both the beneficiaries and non-beneficiaries. And lastly, 8.13 (± 6.47) km for beneficiaries and 8.58 (± 6.90) km for non-beneficiaries to the Agriculture office. The reason for the distance of agriculture office, agri-input dealer and market were not that far located, it is because of their wide connection in the study area.

Table 3: Average distance of respondent farmers' villages from different agricultural-importance places

Average Distance (km) $\pm$ S.D.	Beneficiary (n=60)	Non-Beneficiary (n=60)
Agriculture office	8.13 $\pm$ 6.47	8.58 $\pm$ 6.90
Input dealer store (seed, fertilizer and pesticide)	5.37 $\pm$ 2.82	5.37 $\pm$ 2.82
Market	4.06 $\pm$ 2.34	5.09 $\pm$ 2.39

Table 4 presents the awareness and extent of contact of

various information sources among respondents. While 43 per cent of beneficiaries were aware of SAUs and 94 per cent of non-beneficiaries were aware of SAUs, and 67 per cent of beneficiaries and 8 per cent non-beneficiaries utilized this source for information. Both the beneficiaries and non-beneficiaries farmers showed higher awareness of the Department of Agriculture (100%), State Agricultural Universities (72% by beneficiaries and 94% by non-beneficiaries), and private agencies (97% by beneficiaries and 100 per cent by non-beneficiaries) and to Krishi Vigyan Kendras (100% by beneficiaries and 87% by non-beneficiaries). However, the majority of beneficiaries only frequently visited DoA (61%) and private agencies (53%) and for non-beneficiaries they visited DoA frequently (48%) and private agencies (67%) and (63%) of beneficiaries were frequently visiting KVK, while in case of non-beneficiaries (80%) frequently visiting KVK. Surprisingly, despite awareness of SAUs, the majority (67%) of beneficiaries occasionally visited SAUs and (90%) of non-beneficiaries never contacted them. Although most were aware of exhibitions (63%) of beneficiaries occasionally utilized it and (45%) of non-beneficiaries never utilized it. However, the majority of respondents (55%) beneficiaries and (43%) non-beneficiaries frequently utilized information from friends and for relatives it was (38%) for beneficiaries and (33%) for non-beneficiaries. Awareness of progressive farmers was at 88 per cent, for beneficiaries but (49%) occasionally contacted them and 66 per cent of non-beneficiaries were also aware of progressive farmers, yet 33 per cent never contacted them. TV had high awareness rates (100% for both beneficiaries and non-beneficiaries), with most (77% beneficiaries and 62% non-beneficiaries for TV) always and frequently seeking information from TV. Further, radio had lowest awareness (98% for beneficiaries and 100% of non-beneficiaries never used radio as their source for gaining information. Despite awareness of newspapers, most of the beneficiaries (33%) and non-beneficiaries (37%) only occasionally sought information from them.

Table 4: Distribution of respondents based on different sources of information

Extension contact / agencies (% farmers)	Beneficiary (n=60)						Non-Beneficiary (n=60)					
	Awareness		Extent of utilization				Awareness		Extent of utilization			
	Aware	Not aware	Always	Frequently	Occasionally	Never	Aware	Not aware	Always	Frequently	Occasionally	Never
SAU	43(72)	17(28)	0	3(5)	40(67)	17(28)	54(94)	06(6)	0	1(2)	5(8)	54(90)
DoA	60(100)	0	7(12)	37(61)	16(27)	0	60(100)	0	2(4)	29(48)	29(48)	0
KVK	60(100)	0	0	38(63)	22(37)	0	52(87)	08(13)	0	4(7)	48(80)	8(13)
Private agencies	58(97)	02(3)	14(24)	32(53)	12(20)	2(3)	60(100)	0	6(10)	40(67)	14(23)	0
NGO	0	60(100)	0	0	0	60(100)	0	60(100)	0	0	0	60(100)
Relatives	55(92)	5(8)	10(17)	23(38)	22(37)	5(8)	46(76)	14(23)	0	20(33)	26(43)	14(24)
Progressive farmers	53(88)	7(12)	1(2)	22(37)	29(49)	7(12)	40	20(33)	0	6(10)	34(57)	20(33)
Friends	59(98)	1(2)	14(23)	33(55)	12(20)	1(2)	56(93)	4(7)	1(2)	26(43)	29(48)	4(7)
Radio	1(2)	59(98)	0	0	1(2)	59(98)	0	60(100)	0	0	0	60(100)
Television	60(100)	0	46(77)	11(18)	3(5)	0	60(100)	0	21(35)	37(62)	2(3)	0
Newspaper	48(80)	12(20)	0	28(47)	20(33)	12(20)	42(70)	18(30)	3(5)	17(28)	22(37)	18(30)
Exhibition	60(100)	0	3(5)	19(32)	38(63)	0	33(55)	27(45)	0	3(5)	30(50)	27(45)

Figures in parentheses are the percentages of farmers and rounded off to the nearest whole number.

*SAU= State Agricultural University, KVK= Krishi Vigyan Kendra, DoA= Department of Agriculture

4. Conclusion

Mustard is a vital oilseed crop in India, playing a key role in both nutrition and the economy, providing significant

returns for farmers. India ranks as the third-largest producer of rapeseed-mustard globally, after China and Canada. In the study area, a clear trend is observed, with mustard

growers mainly falling into the middle age group (among beneficiaries) and the younger age group (among non-beneficiaries). These farmers typically have at least a matriculation-level education and live in nuclear families with an average size of five to eight members, both for beneficiaries and non-beneficiaries. Agriculture is the primary occupation for most respondents in this rural area, where small farm sizes are common. Canal water is the main irrigation source for mustard cultivation. Although the study area is far from the agricultural office, it is closer to markets and input stores. Farmers in the area regularly access information from various sources, which helps them stay informed about agricultural practices, market conditions, weather forecasts, and technological developments, enabling them to make better decisions and improve productivity.

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