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Constraints analysis of rapeseed and mustard cultivation in Begusarai district of Bihar

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Abstract
The study has been carried out with the objectives of analyzing the constraint faced by rapeseed-mustard growers during agriculture year 2020-21 (Rabi Season). The constraints faced by the famers were documented and ranked. Primary data was collected from 120 rapeseed-mustard growers of Begusarai District from a cluster of three villages each from two blocks through SRSWOR Technique. In the study area major problems identified for rapeseed-mustard cultivation, the Lack of improved varieties of seed ranked first with Garrett scored 89.3 followed by High transportation cost with Garrett scored 76.58, Agro-ecological constraints with Garrett scored 72.06 had occupied the 3rd position. The other problems associated with rapeseed-mustard production were High fluctuation in market prices, Lack of subsidy on inputs, and Lack of market information respectively. Therefore, it is suggested that the improved variety of seeds and technology along with proper package and practices should be targeted in these areas to increase the supply. There is a need to step up investment in agricultural research, education, extension to reach among unreached section of society emphasizing quality of production and value addition. The outreach of most modern crop production technology may be facilitated up to the last farmers.

Keywords: rapeseed-mustard, constraints, SRSWOR technique etc.

Introduction
India holds a top-ranking in the world not only in terms of rich diversity of oilseed crops but also in terms of area as well. Oilseeds occupy an important position in the Indian economy as they account for 14 per cent of the gross cropped area and contributing more than 4 per cent to the Gross National Product (GNP) as per Directorate of oilseed Development (DOD). India is the third largest rapeseed-mustard producer in the world after China and Canada with 16 per cent of world's total production. The area under rapeseed-mustard in the country was 6.23 Million hectares, produced about 9.34 million tonnes with 1499 kg/ha productivity during the year 2018-19. Bihar ranked ninth among the states, in rapeseed-mustard production, with a growth rate of 7.34% during the eighties whereas Rajasthan state with top ranked. It is the most important crops among oilseeds in terms of both area (0.08 million ha) and production (0.11 million tonnes) in Bihar. (DES, Government of Bihar Patna, 2018-19). Production of oilseeds and oils has not fluorescing with increasing demand for edible oils and due to this widening demand-supply gap has necessitated imports of edible oils. With competing demands on agricultural land from various crops and enterprises, the production of oilseeds can be increased only if productivity is improved significantly and farmers get remunerative prices and assured market access. However, farmers face various constraints in oilseeds production. Unavailability of good Variety seeds, Severe Agro-ecological, technological, institutional, and socio-economic constraints also inhibit exploitation of the yield potential of crops and need to be addressed. Taking into account the changing policy environment, increasing demand, slow growth in domestic production and rising imports and the study attempts to analyze the constraint faced by of Rapeseed–mustard in the state.

Research methodology
The study was conducted in two blocks under Rapeseed-mustard in Begusarai district of Bihar. Three villages from each block consisting of 20 rapeseed-mustard growers from each village were selected randomly. Thus, the data were collected from 120 farmers through a semi-structured interview schedule by using personal interview technique. Thereafter data were compiled, tabulated, analysed and interpreted as per objectives of the study. Farmers Level Constraints in rapeseed-mustard cultivation: Constraints faced by rapeseed-mustard growers related to production were prioritized by using Garrett Ranking Technique.

Garrett Ranking Method

In this method the farmers were asked to rank the given constraint according to the severity of the problem. In analysis, rank 1 means most important problem and rank 15 means least important problem. In the next stage rank assigned to each reason by each individual were converted into per cent position by using the formula:

Percentage Position = 100 (Rij – 0.5) / Nj

Where,
Rij = rank given for ith item by jth individual
Nj = number of items ranked by jth individual

The percentage position was then converted to Garrett Score using Garrett Ranking conversion table. The individual score then obtained were added and mean value were calculated and ranked in descending order

Results and Discussion

Classification of sample farmers based on operational holding of rapeseed-mustard growers

The classification given by CACP in their manual used to categories the sample farmers based on operational holdings and presented below (Table 1). The respondents were further categories into marginal & small farmers having operational holding size less than equal to 2.0 ha, semi-medium farmers with holding size ranging from 2.0 ha to 4.0 ha and medium (4-10 ha) and large farmers (more than equal to 10 ha) and presented in the table 1. Table indicated that the out of total 120 sample farmers, 25 farmers were of marginal & small farmers (20.83 percent) followed by 49 farmers of semi-medium (40.83 percent) and 33 farmers were belonged to medium (27.5 percent) whereas only 13 farmers were large (10.84 percent) farmer's categories.

Table 1: Classification of sample farmers based on operational holding of rapeseed-mustard growers

Category of Rapeseed-Mustard farmers	Operational holding (ha)	Number of Farmers	
		Number	Percentage
Marginal & Small	Less than 2.00 ha	25	20.83
Semi-Medium	2.00 - 4.00 ha	49	40.83
Medium	4.00 - 10.00ha	33	27.5
Large	More than 10.00ha	13	10.84
Total		120	(100.00)

Farmers level constraints and opportunities in cultivation of rapeseed-mustard

The constraints faced by the sample farmers across study area and among different categories of farmers were identified, ranked and presented in table 2. Out of all major problems identified for rapeseed-mustard cultivation, the Lack of improved varieties of seed ranked first with Garrett scored 89.3 followed by High transportation cost with Garrett scored 76.58, Agro-ecological constraints with Garrett scored 72.06 had occupied the 3rd position. The other problems associated with rapeseed-mustard production were High fluctuation in market prices, Lack of subsidy on inputs, and Lack of market information respectively.

Constraints faced by different categories of rapeseed-mustard sample farmers

The constraints faced by different categories of sample farmers are presented in table 2 the marginal & small farmers faced lack of improved varieties of seed as the most important constraint (GS: 89.96) followed by high transportation cost (GS: 77.20), agro-ecological constraints (GS: 71.68), high fluctuation in market prices (GS: 63.96) and lack of subsidy on inputs (GS: 58.76). The semi-medium farmers faced lack of improved varieties of seed (GS: 87.57) as the most important constraint followed by high transportation cost due to small quantity (GS: 75.9), agro-ecological constraints (GS: 74.12), high fluctuation in market prices (GS: 63.27) and problems of weed management (GS: 59.29). Lack of improved varieties of seed and high transportation cost due to small quantity was two most important constraints for medium farmer with Garrett Score of 90.33 and 76.66, respectively.

The similar cultivation constraints were reported by large farmers. On overall basis the first two most important constraints were lack of improved varieties of seed and high transportation cost with Garrett score of 89.3 and 76.58, respectively and sample farmers also reported about cost and non-availability of quality seeds on time, because of this most of the farmers use their local seeds. Agro-ecological constraints, high fluctuation in market prices were next two important constraints on overall basis. Lack of subsidy on inputs for rapeseed-mustard cultivation ranked 5th constraint (GS: 53.27). With respect to problems of marketing, the lack of market information ranked 6th with Garrett Score 49.92 and high fluctuation in market prices ranked 4th with Garrett Score 63.2 of the sample farmers.

Labour availability ranked 7th (GS: 49.62), Long distance of regulated market ranked 8th (GS: 48.8) and Low market price ranked 9th with G.S 44.32 were as a constraint. Problems of weed management and High pest & disease Incidence were ranked as 10th and 11th constraint with Garrett Score of 38.75 and 35.13, respectively in cultivation of rapeseed-mustard by the sample farmers. Lack of marketing facilities in rural area, Fertilizers and nutrients management, Lack of co-operative and Lack of storage facilities in rural area were the least concerned constraint as these facilities and inputs were available in plenty along the study area, therefore the sample farmers ranked them as 12th, 13th, 14th and 15th with Garrett Score of 35.13, 32.59, 30.72 and 30.31, respectively.

Table 2: Constraints faced by different categories of sample farmers in rapeseed-mustard cultivation

Sl. no	Farmers level constraints of rapeseed-mustard sample farmers	Category of rapeseed-mustard sample farmers									
		Small & Marginal		Semi-Medium		Medium		Large		Overall	
		n_1=25		n_2=49		n_3=33		n_4=13		N=120	
		Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank
1.	Agro-ecological constraints	71.68	3	74.12	3	71.42	3	66.69	3	72.06	3
2.	Lack of mproved Varieties of Seed	89.96	1	87.57	1	90.33	1	91.92	1	89.3	1
3.	Fertilizers and Nutrients Management	35.26	12	31.14	14	32.51	12	33.07	12	32.59	13
4.	Problems of Weed Management	58.68	6	59.29	5	59.27	5	59.76	6	38.75	10
5.	High pest & Disease Incidence	36.52	11	36.06	11	31.84	13	32.38	13	34.00	11
6.	Labour Availability	49.76	8	49.45	9	49.54	8	50.23	8	49.62	7
7.	Lack of Subsidy on inputs	58.76	5	58.35	6	59.03	6	59.77	5	53.27	5
8.	Lack of marketing facilities in rural area	35.32	13	35.86	12	34.69	11	38.76	11	35.13	12
9.	Low market price	45.08	10	43.98	10	44.21	10	44.46	10	44.32	9
10.	Lack of co-operative	28.16	15	33.47	13	31.27	14	29.15	15	30.72	14
11.	Lack of storage facilities in rural area	29.72	14	31.29	15	29.72	15	29.30	14	30.31	15
12.	Long distance of regulated market	53.72	7	52.14	7	53.18	7	52.53	7	48.8	8
13.	High transportation cost due to small quantity	77.20	2	75.9	2	76.66	2	80.07	2	76.58	2
14.	High fluctuation in market prices	63.96	4	63.27	4	63.69	4	64.84	4	63.2	4
15.	Lack of market information	49.16	9	51.33	8	49.51	9	47.15	9	49.92	6

Conclusion

Overall the study observed that the scope of rapeseed-mustard in study area along with Bihar state is good and rapeseed-mustard having the potential to bridge the gap between demand and supply of edible oils. From the above discussion it may be concluded that there are different types of constraints faced by the rapeseed-mustard growers. In Study area major problems identified for rapeseed-mustard cultivation, the Lack of improved varieties of seed ranked first followed by High transportation cost, Agro-ecological constraints had occupied the 3rd position. All the problems are more faced by the marginal farmers followed by small farmers and medium farmers. Thus, it can be concluded that problems and size group of farms have indirect relationship. Means as the size of the farm increases problems faced are decreases. Mustard is a lucrative crop and is suitable for doubling the income of the farmers of the study area. Over all it may be said that this study provides the feedback & valuable information to the different research institutions, departments, associated universities and various non-governmental organizations working in agricultural and allied departments to strengthen the research-extension farmer linkage by providing credible input on time to the farmers.

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