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FACTORS AFFECTING PERCEIVED USEFULNESS OF THE SORGHUM GROWERS ABOUT CoFS 29 VARIETY

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ABSTRACT

Sorghum is one of the most important fodder crops. In middle Gujarat, farmers of Kheda district mainly grow single cut variety sorghum, pearl millet and maize as a fodder crop as this district possesses good number of livestock population. After understanding the importance of multi cut variety of sorghum, KVK Kheda conducted FLDs on CoFS 29 variety from year 2017. To understand the factors responsible behind perceived usefulness of this variety and to understand the problems realized among its users as well as to get the suggestions from them to overcome the problems, this study was conducted on 200 CoFS 29 user sorghum growers whom KVK Kheda selected as FLD farmers. The profile characteristics were also studied of the selected CoFS 29 users. Ex-post-facto research design was used and interview schedule was prepared in light with the objective. Frequency, percentage, arbitrary method, mean score and coefficient of correlation were major statistical tools used for analysis of the study. From the study, it was observed that more number of CoFS 29 users were from middle age group with secondary level of education, 1 to 2 ha land, 4 to 6 animals and up to 1 lakh rupee annual income. Majority of them were getting yield from CoFS 29 variety was 120 to 130t, very low level of social participation, and medium level of extension contact. More number of farmers had high level of mass media exposure, medium level of scientific orientation and innovativeness and using bore well for irrigation. Profile characteristics like land holding, annual income, yield and scientific orientation were positive and significantly associated with perceived usefulness about CoFS 29 variety for their users. Major problems realized by the CoFS 29 variety user sorghum growers were high price of seeds; difficulty in availability of seeds and more irrigation are required. Major suggestions offered by the sorghum growers to overcome the problems realized by them while utilizing CoFS 29 variety were price of seeds of CoFS 29 variety should be less and seeds of CoFS 29 variety should be made available easily.

Keywords : *sorghum growers, cofs 29 variety, perceived usefulness, relationship, problems*

INTRODUCTION

Sorghum is one of the most important fodder crops. In India, area under the cultivation of sorghum was 3.84 million ha with 3.76 million tonnes production and in case of Gujarat, area under the cultivation was 0.08 million ha with 0.10 million tonnes production in year 2018-19 (Anonymous, 2020). The yield of sorghum was 979 kg/ha and 1265 kg/ha for India and Gujarat in year 2018-19, respectively. In Gujarat, sorghum is mainly cultivated for fodder purpose. Out of various zones of Gujarat, middle Gujarat is one of the remarkable zones of livestock population and farmers of this area grow various fodder crops to feed their animals. In middle Gujarat, farmers of Kheda district mainly grow single cut variety sorghum, pearl millet and maize crop as a fodder crop but these crops are single cut and cannot be available for long period. After understanding the importance of recommended multi cut variety of sorghum, Krishi Vigyan Kendra, Kheda decided to conduct the front line demonstrations (FLDs) of CoFS 29 variety of sorghum in Kheda district from year 2017 with a view to long term fodder availability and to increase the area of production of this variety by increasingly the number of its adopters. But only organized FLDs are not sufficient task. It is necessary to understand for agriculture scientists regarding perceived usefulness about the FLDs that have been organized on farmers' field, the factors affect for that perceived usefulnessthe, major constraints faced by its users while utilizing it as well as to get the suggestions from them to overcome the problems faced by them. Due to that this study was conducted to understand the factors that affect on perceived usefulness of the sorghum growers about CoFS 29 variety, to understand the problems faced by its users and

to get the suggestions from them to overcome the problems. Profile of the CoFS 29 users work as the factors for them for perceived usefulness, hence it was also studied.

OBJECTIVES

(1) To study the profile of CoFS 29 variety user sorghum growers

(2) To study the relationship between profile characteristics of CoFS 29 user sorghum growers and usefulness perceived by them regarding CoFS 29 variety of fodder sorghum

(3) To identify the problems realized by the sorghum growers while utilizing CoFS 29 variety

(4) To ascertain the suggestions of the sorghum growers to overcome the problems while utilizing CoFS 29 variety

METHODOLOGY

Ex-post-facto research design was used for the study. The present investigation was conducted in Kheda district of the middle Gujarat. This district was selected purposively for the study because such type of study had not been yet undertaken in this district and this district comes under the jurisdiction of Krishi Vigyan Kendra (KVK), Kheda. Farmers of this district are comparatively more innovative, having with more number of livestock, cultivating green fodder to feed their animals and KVK, Kheda has conducted frontline demonstrations of CoFS 29 of fodder sorghum since 2017 with a view to popularize the variety in district. From ten talukas of Kheda district four talukas- Kheda, Kapadvanj, Mahemdabad and Kathalal where KVK-Kheda has conducted FLDs were selected purposively for the study. A total of 200 CoFS 29 user sorghum growers were selected for the study. A total of 12 independent variables viz., age, education, land holding, herd size, annual income, yield, social participation, extension contact, mass media exposure, scientific orientation, innovativeness and irrigation facility were selected as factors. For measurement of scientific orientation and innovativeness, scale developed by Patel, (2007) and Feaster, (1968) were used, respectively and for measurement of remaining variables, structured schedule was used. Frequency, percentage and arbitrary method were used as statistical tools for categorized the profile characteristics. To find out the relationship between independent variables of sorghum growers and their level of perceived usefulness about CoFS 29 variety, the Pearson's product method suggested by Chandel, (1974) was used as a statistical tool namely coefficient of correlation. For measurement of constraints, the sorghum growers were asked to give their responses regarding the problems on 3 point rating scale where 2, 1 and 0 score were assigned to each problem where 2 score for mostly faced, 1 score for less faced, and 0 for not faced that problem. Similarly suggestions regarding overcome the constraints were also collected on 3 point rating scale where 2,1 and 0 score were assigned to each suggestion where 2 score for mostly important, 1 score for less important, and 0 for not important. On that basis, mean scores were calculated for individual statement of the problem as well as suggestions. Overall ranks were assigned on the basis of mean scores. Similar procedures for studying constraints and suggestions were also followed by Markana *et al.,* (2015), Raviya, (2017) and Tankodara, (2020) for getting appropriate conclusion.

RESULTS AND DISCUSSION

Profile of CoFS 29 variety user sorghum growers is presented in table 1.

Table 1: CoFS 29 user sorghum growers according to their profile characteristics (n=200)

Sr. No.	Category	Frequency	Per cent
1 Age			
1	Young (up to 35)	29	14.5
2	Middle age (above 35 to 50)	94	47.0
3	Old age (above 50)	77	38.5
2 Education			
1	Primary education	14	07.0
2	Secondary education	134	67.0
3	Higher secondary education	45	22.5
4	Graduation	07	3.5
3 Land holding			
1	Marginal (Less than 1 ha)	77	38.5
2	Small (1 to 2 ha)	103	51.5
3	Medium (2 to 4 ha)	20	10.0
4	Large (More than 4 ha)	00	00
4 Animal possession			
1	Up to 3 Animal	18	9.0
2	4 to 6 Animal	120	60.0
3	Above 6 Animal	62	31.0
5 Annual income			
1	Up to 1 lakh	106	53.0
2	1 to 2 lakh	51	25.5
3	2 to 3 lakh	35	17.5
4	3 to 4 lakh	08	4.0
5	More than 4 lakh	00	00
6 Yield (Per Ha Per Year)			
1	Up to 100 t	11	05.5
2	100t to 120 t	47	23.5
3	120t to 130 t	142	71.0
7 Social participation			
1	Very low (0 to 3.0)	195	97.5
2	Low (3.1 to 6.0)	05	02.5

Sr. No.	Category	Frequency	Per cent
3	Medium (6.1 to 9.0)	00	00
4	High (9.1 to 12.0)	00	00
5	Very High (12.1 to 15.0)	00	00
8 Extension contact			
1	Very Low (0 to 12.6)	00	00
2	Low(12.7 to 25.2)	29	14.5
3	Medium(25.3 to 37.8)	138	69.0
4	High(37.9 to 50.4)	25	12.5
5	Very High(50.5 to 63.0)	08	04.0
9 Mass media exposure			
1	Very Low (0 to 12.6)	00	00
2	Low (12.7 to 25.2)	19	09.5
3	Medium (25.3 to 37.8)	61	30.5
4	High (37.9 to 50.4)	83	41.5
5	Very High (50.5 to 63.0)	37	18.5
10 Scientific orientation			
1	Very Low (14.0 to 25.2)	15	7.5
2	Low (25.3 to 36.4)	32	16.0
3	Medium (36.5 to 47.6)	80	40.0
4	High (47.7 to 58.8)	50	25.0
5	Very High (58.9 to 70.0)	23	11.5
11 Innovativeness			
1	Very Low (0 to 2.4)	00	00
2	Low (2.5 to 4.8)	24	12.0
3	Medium (4.9 to 7.2)	84	42.0
4	High (7.3 to 9.6)	55	27.5
5	Very High (9.7 to 12.0)	37	18.5
12 Irrigation facility			
1	Bore well	142	71.0
2	Canal	58	29.0

From table 1, it can be observed that majority (85.5 per cent) of the CoFS 29 user sorghum growers had age more than 35 year, followed by 14.5 per cent had up to 35 year age. Majority (67.0 per cent) of the CoFS 29 users were having with secondary level of education followed by 22.5, 7.0 and 3.5 per cent had higher secondary, primary and graduation level of education, respectively. Slightly more than half (51.5 per cent) of the CoFS 29 users were small farmers, followed by 38.5 per cent were marginal and 10.0 per cent were medium farmers. Not a single farmer was large by land possession.

It was observed that exact three-fifth (60 per cent) of the farmers were having with 4 to 6 animals, followed by 31.0 per cent had above 6 animals and 9.0 per cent of the farmers had up to 3 animals. In case of annual income, nearly half (53.0 per cent) of the CoFS user growers were having with up to 1 lakh rupee annual income, followed by 25.5 per cent had 1 to 2 lakh annual income, 17.5 per cent had 2 to 3 lakh annual income and 4.0 per cent of them had 3 to 4 lakh annual income. Majority (71.0 per cent) of the CoFS 29 user growers had 120 to 130 t per ha per year yield of sorghum, followed by 23.5 and 5.5 per cent had 100 to 120 t and up to 100 t yield, respectively.

In case of social participation, great majority (97.5 per cent) had very low level and 2.5 per cent had low level of participation in various social organizations. Majority (69.0 per cent) of the CoFS 29 users had medium level of extension contact, followed by 14.5, 12.5 and 4.0 per cent had low, high and very high level of extension contact, respectively. Nearly two-fifth (41.5 per cent) of the CoFS 29 users had high level of mass media exposure, followed by 30.5 per cent had medium, 18.5 per cent had very high and 9.5 per cent had low level of exposure of various mass media tools and services.

In case of scientific orientation, exact two-fifth (40.0 per cent) of the CoFS 29 users had medium level of scientific orientation, followed by 25.0, 16.0, 11.5 and 7.5 per cent of had high, low, very high and very low level of scientific orientation, respectively. Slightly more than two-fifth (42.0 per cent) of the CoFS 29 users had medium level of innovativeness, followed by 27.5, 18.5 and 12.0 per cent had high, very high and low level of innovativeness, respectively. Majority (71.0 per cent) of the CoFS 29 user sorghum growers were using bore well and 29.0 per cent were using canal as a source of irrigation.

Relationship between the selected characteristics of the CoFS 29 users and their perceived usefulness regarding CoFS 29 variety is presented in table 2.

Table 2: Relationship between profile characteristics of CoFS 29 user sorghum growers and usefulness perceived by them regarding CoFS 29 variety of fodder sorghum (n=200)

Sr. No.	Particular	r value
X_1	Age	0.086
X_2	Education	-0.080
X_3	Land holding	0.152*
X_4	Animal possession	0.121
X_5	Annual income	0.182**
X_6	Yield	0.213**
X_7	Social participation	0.027
X_8	Extension contact	-0.053
X_9	Mass media exposure	-0.058
X_{10}	Scientific orientation	0.240**
X_{11}	Innovativeness	-0.054
X_{12}	Irrigation facility	-0.004

* = Significant at 0.05 level,

** = Highly Significant at 0.01 level

From the table 2, it can be seen that out of 12 characteristics, annual income, yield and scientific orientation were positive and highly significantly associated with perceived usefulness about CoFS 29 variety. Land holding positive and significantly associated while remaining all the characteristics were non-significantly associated with perceived usefulness about CoFS 29 variety.

It can be concluded that perceived usefulness about CoFS 29 variety was observed higher among those users who had more area of possessed land, higher annual income, more yield of CoFS 29 variety and scientifically more oriented.

The probable reason behind this kind result might be that CoFS 29 users who were having with more annual income and yield had positive attitude towards this variety and due that they perceived more usefulness of this variety than other sorghum growers. Similar way, users who were more scientifically oriented tried to learn more about this variety and they cultivated this variety by scientific ways. CoFS 29 users who were having with more land area cultivated the variety in more area and got more production of it. Due to that they became satisfied regarding the variety and perceived more usefulness than other users. The results are in line with the study of Kharade and Patel (2021).

The result in Table 3 indicates the problems realized by the sorghum growers while utilizing CoFS 29 variety.

Table 3: Problems realized by the users of CoFS 29 variety while utilizing it (n=200)

Sr. No.	Problems	Mean Score	Rank
1	High price of seeds of CoFS 29 variety of sorghum	1.40	1st
2	Difficulty in availability of seeds	1.38	2nd
3	More irrigation are required	1.11	3rd
4	More fertilizer in needed	1.08	4th
5	Difficulty in storage of dry fodder	0.80	5th
6	This variety is not suitable for climate conditions	0.72	6th
7	Difficult for animals to digest	0.62	7th
8	Not suitable for soil	0.57	8th
9	High price of pesticides for controlling of pest and diseases	0.50	9th
10	Reduction in milk production	0.50	9th
11	Less production than other varieties	0.49	10th
12	More incidence of pest and diseases	0.47	11th
13	Difficulty at the time of harvesting	0.41	12th
14	Poisoning effect on animal	0.31	13th
15	Less knowledge about scientific production technology of CoFS 29 variety	0.22	14th

From the table 3, it can be seen that problems realized by the CoFS 29 user sorghum growers was high price of seeds of CoFS 29 variety with 1.40 mean score, followed by difficulty in availability of seeds (1.38 mean score), more irrigation are required (1.11 mean score), more fertilizer in needed (1.08 mean score), difficulty in storage of dry fodder (0.80 mean score), this variety is not suitable for climate conditions (0.72 mean score)and difficult for animals to digest (0.62 mean score).

Some problems i.e. not suitable for soil with 0.57 mean score was faced by less number of sorghum growers, followed by high price of pesticides for controlling of pest and diseases (0.50 mean score), reduction in milk production (0.50 mean score), less production than other varieties (0.49 mean score), more incidence of pest and diseases (0.47 mean score), difficulty at the time of harvesting (0.41 mean score), poisoning effect on animal (0.31 mean score) and less knowledge about scientific production technology of CoFS 29 variety(0.22 mean score).

Table 4: Suggestions from the sorghum growers to overcome the problems faced by them in use of CoFS 29 variety (n=200)

Sr. No.	Suggestions	Mean Score	Rank
1	Price of seeds of CoFS 29 variety should be less	1.58	1st
2	Seeds of CoFS 29 variety should be made available easily	1.40	2nd
3	Farm inputs should be made available at subsidized rate	1.13	3rd
4	Storage facility for fodder should be made available	1.06	4th
5	Information about use of CoFS 29 variety should be made available in simple language so that less educated farmers can also get benefits of it easily	0.78	5th
6	More number of demonstration should be arranged	0.76	6th
7	Direct contact with scientists should be made available so that farmers can get solutions of their queries easily	0.74	7th
8	More number of training programs should be arranged on CoFS 29 variety	0.50	8th

The result in table 4 indicates the suggestions from the sorghum growers to overcome the problems faced by them while utilizing CoFS 29 variety. From table 4, it can

be seen that major suggestion given by farmers to overcome the problems realized by them was price of seeds of CoFS 29 variety should be less with 1.58 mean score, followed by seeds of CoFS 29 variety should be made available easily (1.40 mean score), farm inputs should be made available at subsidized rate (1.13 mean score),storage facility for fodder should be made available (1.06 mean score),information about the usage of CoFS 29 variety should be made available in simple language so that less educated farmers can also get benefits of it easily (0.78 mean score), more number of demonstration should be arranged (0.76 mean score),direct contact with scientists should be made available so that farmers can get solutions of their queries easily (0.74 mean score) and more number of training programs should be arranged on CoFS 29 variety (0.50 mean score).

CONCLUSION

On the basis of this entire study, it can be concluded that more number of CoFS 29 users were from middle age group with secondary level of education, 1 to 2 ha land, 4 to 6 animals and up to 1 lakh rupee annual income. Majority of them were getting yield from CoFS 29 variety was 120 to 130t, very low level of social participation, and medium level of extension contact. More number of farmers had high level of mass media exposure, medium level of scientific orientation and innovativeness and using bore well for irrigation. Profile characteristics like land holding, annual income, yield and scientific orientation were positive and significantly associated with the perceived usefulness about CoFS 29 variety for their users. So, it can be understood that land holding, annul income, yield and scientific orientation were main factors responsible behind perceived usefulness for CoFS 29 users. Major problems realized by the CoFS 29 variety user sorghum growers were high price of seeds of CoFS 29 variety of sorghum, difficulty in availability of seeds, more requirement of irrigation and more need of fertilizer. Major suggestions offered by the sorghum growers to overcome the problems realized by them while utilizing CoFS 29 variety were price of seeds of CoFS 29 variety should be less, seeds of CoFS 29 variety should be made available easily, farm inputs should be made available at subsidized rate and storage facility for fodder should be made available.

IMPLICATION

The findings of this study will helpful to understand the profile of the fodder sorghum growers for other researchers. The characteristics affect on development of perceived usefulness about CoFS 29 variety will helpful to policy makers and planners for development and implement the policies particularly for availability of fodder sorghum for dairy farmers. The suggestions offered by the CoFS 29 users will helpful to line department regarding making easy availability of seeds of the variety at low price.

CONFLICT OF INTEREST

No conflict of interest among researchers.

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