

ANALYSIS OF CONSTRAINTS FACED BY SORGHUM GROWERS OF HARYANA

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SUMMARY

In Haryana, sorghum is grown as fodder crop in 40.3 thousand hectare, and total production of sorghum is 21.3 thousand tones with average yield of 528 kg per hectare (DOA & FW, Haryana). The study was undertaken to identify the constraints faced by the farmers in sorghum cultivation. In Gurugram district, two blocks were selected and out of these two blocks, eight villages were selected randomly for the study (Four villages from each block). Thus, 120 sorghum growers were personally interviewed with the help of a well structured interview schedule. Main constraints faced by the farmers in adoption of the recommended package of practices of sorghum are described. For better interpretation and analysis, all the constraints faced by farmers were classified into three categories *i.e.* related to inputs, constraints related to marketing and constraints related to production. Weighted mean score and rank order were calculated to find out the highest constraints faced by the respondents. Input constraints clearly showed that high prices of agro-chemicals was the main constraints faced by the respondents followed by non-availability of inputs at proper time, lack of finance for purchase of inputs, high labour and non- availability of the quality seed was the least serious constraint faced by respondents related to the inputs. Among marketing constraints, lack of transport facilities and disposal of produce were the main constraints followed by lack of guidance for proper time and place of marketing was second more serious constraints, no support price of produce was the least or not so serious constraint related to marketing.

Key words : Production, constraints, forage sorghum, marketing, input, seed and pesticide

Sorghum is mainly used for food, fodder, production of alcoholic beverages, and bio fuels. It is an important food crop in African countries. The United States of America is the leading country in the production of sorghum worldwide with production of 11.5 million metric tons followed by India with the production of 7.5 million metric tons and Nigeria, Mexico, Sudan are leading countries in sorghum production (Anon., 2018). In India, sorghum is the fifth most important cereal crop after wheat, rice, maize and barley. It is mainly grown in the region of Peninsular and Central India. Maharashtra is leading state in sorghum production followed by Karnataka while Andhra Pradesh, Madhya Pradesh, Gujarat, Rajasthan, Uttar Pradesh and Tamil Nadu, are the other states which grow sorghum in small areas mainly as fodder crop. In Haryana, sorghum is grown mainly as fodder crop. Total area of sorghum in Haryana is 40.3 thousand hectare, and total production of sorghum is 21.3 thousand tons with average yield of

528 kg per ha. In Gurugram, total area under sorghum cultivation is 6000 ha. (Dept. of Agriculture & Farmer Welfare, Gurugram).

Sorghum is also known as “Global Grain” due to its multipurpose use being a 4F (food, feed, fodder and fuel) crop. Being used as a grain and energy crop it is also widely used for the production of forage and silage for animal feed; because of its broader leaves with high palatability and provide green fodder over a longer period of time specially, in lean period. But the required quantity of quality green fodder is not available throughout the year, so sorghum could also play an important role as fodder crop in dry period. Sorghum as a source of fodder and feed has the potential to meet the by dairy sector needs. Single cut forage sorghum varieties yields about 400-500 and 100-150 q/ha of green and dry fodder rich in quality (Satpal *et al.*, 2020). On the other hand, multicut forage sorghum varieties ensures continuous supply of green fodder over a longer period, considering this high

yielding annual or perennial multicut forage sorghum genotypes with high tillering and good regeneration potential is in great demand among dairy farmers. The multicut sorghum cultivars also help to reduce the cost of cultivation (Satpal *et al.*, 2017). Sorghum is also used in brewing industry for the production of ethanol, starch and syrup. It is used as livestock feed and fodder mainly in United States and Europe, for grain and fodder in Africa and India, for making alcoholic beverage in China and Africa, and many other uses in different parts of the world. India has (16 %) of the total livestock population of the world with respect to only (2.6%) of the world's geographical area. Though, India accounts for high cattle population, the productivity of cattle is the lowest mainly due to unavailability of good quality fodder in sufficient quantity. India has 512.05 million livestock population but the area under fodder crops remained static about (4.4 %) of the total cultivated area due to focus mainly on the cereal, horticultural crops and cash crops after green revolution. In this scenario, sorghum emerges as most important crop as fodder crop due to its high palatability and high value of crude protein and other nutrients present in the sorghum (Mbulwe, 2015).

Keeping in view these facts the study was undertaken with the specific objective to identify the constraints faced by the farmers in sorghum production technologies.

MATERIALS AND METHODS

The study was conducted in Gurugram district of Haryana. Out of twenty two districts of Haryana state, Gurugram was selected purposively. There is a huge demand of fodder crops from dairy point of view and sorghum has emerged as an important fodder crop among the entire fodder crops. Sorghum fodder is one alternative to feed the milch animals. It was necessary to assess the constraints faced by the sorghum growers or dairy farmers in scientific cultivation of sorghum fodder in Gurugram to enhance the production of sorghum fodder and technological gap could be minimized.

Selection of respondents:

Two blocks *viz.* Farrukhnagar, Pataudi were selected randomly from the Gurugram district. Then, four villages from each block were selected randomly. Allimuddinpur, Mushaidpur, Kaliyawas, and Dabooda selected from Farrukhnagar block and Unchamajra,

Mirzapur, Baspadmaka, Narhera from Pataudi block. Fifteen farmers from each selected village were selected randomly. Thus, a total number of 120 farmers were selected as a sample for present study.

Collection and analysis of data:

Data were collected with the help of well-structured interview schedule which was pretested. Therefore, the data were collected through personal interview technique for main constraints faced by the farmers in adoption of the recommended package of practices of sorghum are described into three categories on the basis of their aspects. These categories were, constraints related to input, constraints related to marketing and constraints related to production. Weighted mean score and rank order tools were used to find out the highest constraints faced by the respondents.

RESULTS

Constraints in adoption of sorghum cultivation as perceived by respondents

Keeping in view, main constraints faced by the farmers in adoption of the recommended package of practices of sorghum are described. For better interpretation and analysis, all the constraints faced by farmers are classified into three categories on the basis of their aspects. These categories were, constraints related to input, constraints related to marketing and constraints related to production. Weighted mean score and rank order tools were used to find out the highest constraints faced by the respondents.

Constraints faced by respondents related to input

Constraints related to inputs mainly seed, agro-chemicals and labors were discussed here. Input constraints were main barrier in high and quality production of sorghum in investigated area. Data presented in Table 1 related to input related constraints clearly shows that high prices of agro-chemicals was the main constraint faced by the respondents with highest 2.51 mean score and ranked 1st. Non availability of inputs at proper time was also very serious constraints faced by respondents with 2.46 mean score and II rank order. Mainly non- availability of urea was the main constraints in all the inputs. Third

TABLE 1
Constraints related to inputs

S. No.	Factors	Very serious (3)	Serious (2)	Not so Serious (1)	Total score	Weighted mean score	Rank
1.	Non- availability of quality seed	14(42)	13(26)	93(93)	161	1.34	V
2.	Lack of finance for purchase of inputs	19(57)	37(74)	64(64)	195	1.62	III
3.	High price of insecticides/pesticides and fungicides	77(231)	28(56)	15(15)	302	2.51	I
4.	Non- availability of inputs at proper time	71(213)	34(68)	15(15)	296	2.46	II
5.	Non- availability of labour/high labour charges	15(45)	21(42)	84(84)	171	1.42	IV

rank given to constraint lack of finance for purchase of inputs with 1.62 mean score and it was mainly related with the high prices of seed, pesticides and fertilizers. High labor charges were the 4th rank constraint according to the respondents with 1.42 mean score. It was mainly because of lack of skilled labor in the investigated area. Constraints related to the inputs ranked 5th *i.e.* of non- availability of the quality seed with 1.34 mean score.

Constraints related to marketing

Constraints related to the marketing mainly deals with the time and place for marketing, support price and transport facilities of forage sorghum. Constraints were ranked with the help of weighted mean score. In constraints related to marketing, lack of transport facilities and disposal of produce was the main constraint with 1.65 mean score and rank first.

Lack of guidance for proper time and place for marketing, constraint was second very serious constraint related to marketing with 1.63 mean score and 2nd rank. No support price of produce was the least effective constraint related to marketing. Mean score was 1.30 with 3rd rank order. These constraints might be due to lack of proper guidance and non-commercial crop growing system followed by respondents.

Constraints related to production

Constraints related to production mainly discussed here were fluctuation in weather condition; farmer and labour are unskilled due to lack of trainings, lack of proper cropping sequence, non-awareness about proper and balanced fertilizer and problem of stray animals. These constraints were found to be the major constraints related to the production of forage

TABLE 2
Constraints related to marketing

S. No.	Factors	Very serious (3)	Serious (2)	Not so Serious (1)	Total score	Weighted mean score	Rank
1.	Lack of guidance for proper time and place for marketing	25(75)	26(52)	69(69)	196	1.63	II
2.	Support price of produce	8(24)	21(42)	91(91)	157	1.30	III
3.	Lack of transport facilities and disposal of produce	23(69)	33(66)	64(64)	199	1.65	I

TABLE 3
Constraints related to production

S. No.	Factors	Very serious (3)	Serious (2)	Not so Serious (1)	Total score	Weighted mean score	Rank
1.	Fluctuation in weather conditions	8(24)	11(22)	101(101)	147	1.22	V
2.	Farmers and labour are unskilled due to lack of trainings	13(39)	19(38)	88(88)	165	1.37	IV
3.	Lack of proper cropping sequence	8(24)	35(70)	77(77)	171	1.42	III
4.	Non-awareness about proper and balanced fertilizer application	22(66)	55(110)	43(43)	219	1.8	II
5.	Problem of stray animals	92(276)	15(30)	13(13)	319	2.65	I

sorghum. Major constraint related to production was the problem of stray animal with 2.65 mean score and rank first. Non-awareness about proper and balanced fertilizer application was second most serious constraint related to the production with 1.80 mean score and 2nd rank. Lack of proper cropping sequence was also very serious constraint faced by farmers related to the production with 1.42 mean score and 3rd rank order. Farmer and labour are un-skilled due to lack of training was another constraint faced by farmers. It also called simply the lack of training organized in investigated area. This constraint ranked 4th with mean score of 1.37. Fluctuation in weather conditions was the least serious constraint in sorghum production technology faced by farmers with 1.22 mean score and rank 5th.

DISCUSSION

Constraints faced by the farmers in sorghum production technology

Input constraints clearly indicate that high prices of agro-chemicals was the main constraints faced by the respondents followed by non-availability of inputs at proper time, lack of finance for purchase of inputs, while high labour and non-availability of the quality seed was the least serious constraint faced by respondents related to the inputs. In constraints related to marketing, lack of transport facilities and disposal of produce were the main constraints followed by lack of guidance for proper time and place of marketing was second very serious constraints, no support price of produce was the least effective constraint related to marketing. These results are supported by past study of Singh *et al.* (1988) who reported lack of capital and high prices of fertilizers, lack of irrigation sources, lack of high yielding and quality seed, timely unavailability of fertilizers, etc. were major constraints. Ghuge and Kadam (2015) also states that un-skilled labour was major constraints in obtaining the maximum productivity.

Constraints in adoption of sorghum cultivation as perceived by respondents

In input constraints, high prices of agro-chemicals was the main constraint faced by the farmers. Non-availability of inputs at proper time, lack of finance for purchasing inputs and high labour charges and non-availability of quality seed were other

major constraints faced by them. In marketing constraints, lack of transport facilities and disposal of produce were the major constraints faced by farmers. Other constraints were lack of guidance for proper time and place for marketing and no support price of produce. In constraints related to production, problem of stray animal was the most serious constraint faced by the farmers. Non-awareness about proper and balanced fertilizer application, lack of proper cropping sequence, un-skilled farmer and labour due to lack of trainings and fluctuations in weather conditions were other production constraints faced by farmers.

CONCLUSION

There was a huge technological gap in adoption of sorghum production practices like planting distance, insect pest and their control, disease and their control measures, non-availability of inputs at proper time, lack of finance for purchase of inputs, high price of insecticides/pesticides and fungicides, lack of guidance for proper time and place for marketing, lack of transport facilities and disposal of produce, fluctuation in weather conditions, lack of proper trainings on sorghum production technologies etc. There is great need to evolve new modern technologies for agronomic practices of sorghum; like new multicut varieties, less expensive control measures for disease and insect pest, timely input availability to the farmers, ease of marketing facilities and formation of organization for trainings on sorghum production technology for the farmers (Charyulu *et al.* 2016).

Strategies for enhancing forage sorghum production

Based on results and experience gained after the completion of the investigation the following points are suggested:

- (1) Need to highlight the sorghum production to bridge the gap in demand and availability of fodder in the area.
- (2) Regular trainings on sorghum production technologies for those who grow sorghum as fodder crop and dairy farmers should be organized.
- (3) Agricultural officers, extension officers etc. must be given trainings regarding sorghum and other fodder production technology
- (4) Suitable multicut varieties for lean periods

- with good quality fodder should be developed.
- (5) Subsidy should be given to sorghum growers on all inputs so as to promote sorghum production.
 - (6) Intensive forage production system (round the year) should be followed.
 - (7) For effective TOT, farmers training and demonstration programs must be implemented through Animal Husbandry, Dairying Department, Dairy Co- operatives, KVKs and other extension functionaries.

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