



P-ISSN: 2349-8528

E-ISSN: 2321-4902

www.chemijournal.com

IJCS 2021; SP-9(3): 104-107

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Received: 25-01-2021

Accepted: 07-03-2021

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Knowledge of farmers towards promotion of agricultural mechanization for *in-situ* management of crop residue scheme in Haryana

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Abstract

Study was conducted in two districts – Bhiwani and Kaithal, covering two blocks of each district and two villages from each block with random sample techniques with 200 respondents. More than 70.0 percent of respondents had high knowledge scores about scheme followed by medium knowledge score (27%). Out of which 68.5% of respondents were getting knowledge through government officials and knowledge of the respondents had a positive and significant correlation with education of the respondents.

Keywords: Knowledge, crop residue, mechanization, *in-situ* management

Introduction

Paddy straw burning is practiced in Punjab, Haryana & Uttar Pradesh to clear the fields for Rabi Crop. The poor air quality in the NCR region, especially during winter season and the impact of crop residue burning (Paddy Straw) during October-November period every year has been a matter of grave concern. The government of India and state governments of Punjab, Haryana and Uttar Pradesh have taken a number of steps to control burning of paddy straw. Agricultural universities and KVKs had also played a major role in persuading farmers to manage paddy straw without resorting to burning. The Ministry of Farmers Welfare, Government of India, has initiated the implementation of the approved the Agricultural Mechanization Promotion Scheme with the primary objective of reducing air pollution caused by stubble burning. It is an evident fact that metro cities such as Mumbai, Chandigarh, as well as the National Capital of Delhi are affected by greater air pollution on a year-to-year basis. One of the primary reasons behind this is said to be the burning of crop residue by the farmers. Due to this, numerous other cities and villages are suffering the evil pangs of pollution and contamination of the air. Thus, to nullify this and control pollution, the Central Government of India is launched a special scheme, "Promotion of Agricultural Mechanization for *in-situ* Management of Crop Residue" to support the efforts of the governments of Punjab, Haryana and Uttar Pradesh and NCT of Delhi to deal with air pollution and to subsidize machinery required for *in-situ* management of crop residue for the period 2018-19 to 2019-20 has been approved. Protecting environment from air pollution and preventing loss of nutrients and soil micro-organisms caused by burning of crop residue (CR).

Crop residue is the agricultural waste that left in the field after harvest. It is the biomass in the form of cereal straws, woody stalks, and sugarcane leaves. CRs are good sources of plant nutrients and soil fertility improvement. Once a crop is harvested, farmers have to decide what to do with the remaining crop residue. Farmers choose burning because it's a fast and straightforward way to manage the massive quantities of crop residues and prepare the sector for subsequent crop well in time. By the burning of crop residue creates a huge pollution problem in the atmosphere and deteriorates the soil nutritive value or quality. Burning of straw emits harmful gases like CO₂, CH₄, CO, N₂O, SO₂ which adversely affect the environment. Therefore, present study was planned with focus on assessment the knowledge of farmers about scheme on promotion of agricultural mechanization for *in-situ* management of crop residue and factors affecting knowledge of farmers.

Methodology

The comparative study was conducted purposively in two agro climatic (Eastern and Western) zones of Haryana state. Kaithal district from Eastern and Bhiwani district from Western zones were selected at random.

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Bawani Khera and Bhiwani block from Bhiwani district and Kaithal and Rajound block from Kaithal district were selected randomly. Four villages namely Tigrana from Bhiwani block, Kheri Daulatpur from Bwani khera block, Kheri Sheru from Kaithal block and Songal from Rajound block were selected randomly. Out of each selected village 50 respondents were selected at random. Thus a total of 200 respondents were selected for the purpose of investigation.

A well-structured interview schedule was prepared to obtain information from respondents. Interview schedule included questions on general as well as specific information about respondents pertaining to the independent and dependent variables. The data were collected personally by the researcher. The collected data were classified and tabulated

depending on the kind of information required keeping in view the specific objective of the study. The statistical data were analyzed by using frequency, percentage and coefficient of correlation.

Results and Discussion

Socio-personal profile of the respondents

Table 1 revealed that majority of respondents were from 36-50 years of age group (60.5%), belonged to general caste (90.0%), educated up to graduate (23.0%), having medium family education status (47.0%), nuclear family type (53.0%) supported by with medium family size (43.5%), medium scores on material possession (49.5%) and members of formal/ non-formal organization (62.5%).

Table 1: Socio-personal profile of the respondents, N-200

Variables	Categories	Zone (Percentage)		Total-N 200 F (%)
		Western zone Bhiwani (N-100)	Eastern zone Kaithal (N-100)	
Age (in years)	Below 35 years	16.0	29.0	45 (22.5)
	36-50 years	64.0	57.0	121 (60.5)
	Above 50 years	20.0	14.0	34 (17.0)
Gender	Male	100.0	100.0	200 (100.0)
	Female	00	00	00
Caste	SC	2.0	4.0	6 (3.0)
	BC/OBC	5.0	8.0	13 (6.5)
	General	93.0	88.0	181 (90.5)
Marital Status	Married	77.0	84.0	161 (80.5)
	Unmarried	23.0	16.0	39 (19.5)
Education of respondent	Illiterate	9.0	5.0	14 (7.0)
	Can read and write	11.0	7.0	18 (9.0)
	Primary school	12.0	10.0	22 (11.0)
	Middle school	8.0	13.0	21 (10.5)
	Matriculation	16.0	28.0	44 (22.0)
	Graduation	29.0	17.0	46 (23.0)
	Post graduate	9.0	5.0	14 (7.0)
Family Educational Status	Technical/ vocational education	6.0	15.0	21 (10.5)
	Low (1.03-3.53)	32.0	30.0	62 (31.0)
	Medium (3.54-4.57)	45.0	49.0	94 (47.0)
Family type	High (4.58-5.61)	23.0	21.0	44 (22.0)
	Nuclear	59.0	47.0	106 (53.0)
Family size	Joint	41.0	53.0	94 (47.0)
	Small (up to 4 members)	29.0	35.0	64 (32.0)
	Medium (5-7 members)	37.0	50.0	87 (43.5)
Material possession	Large (more than 7 members)	34.0	15.0	49 (24.5)
	Low (5-8)	35.0	25.0	60 (30.0)
	Medium (9-12)	46.0	53.0	99 (49.5)
Social Participation	High (13-16)	19.0	22.0	41 (20.5)
	Member of formal/ non formal organization	57.0	68.0	125 (62.5)
	No membership	43.0	32.0	75 (37.5)

Figures in parenthesis indicate percentages.

Distribution of respondents regarding source of knowledge about the scheme

Results in Table 2 revealed that 68.5% of respondents were getting knowledge through government officials. It was

followed by friends & relatives (54.5%), mass media (42.0%) sarpanch/*Panchayat* member (39.5%) and family members (32.0%) respectively.

Table 2: Distribution of respondents regarding source of knowledge about the scheme, N-200

S. No.	Sources	Response (%)		Total - 100 F (%)
		Bhiwani (N-100)	Kaithal (N-100)	
1.	Friends & relatives	47.0	62.0	109 (54.5)
2.	Family members	29.0	35.0	64 (32.0)
3.	Mass media	35.0	49.0	84 (42.0)
4.	Government official	66.0	71.0	137 (68.5)
5.	Sarpanch/ <i>Panchayat</i> member	42.0	37.0	79 (39.5)

Figures in parenthesis indicate percentages.

Knowledge of respondent's regarding different component of the scheme

Table 3 depicts that 100.0 percent of the respondents had correct knowledge regarding scheme- Promotion of agricultural mechanization for *in-situ* management of crop residue. It was followed by mode of payment to beneficiaries (96.5%), availability of machines in CHC (96.0%), farm machinery banks or custom hiring centres (89.0%), the procedure for getting benefits under the scheme (88.5%), fine

imposed by the government (87.0%), provision of financial assistance under this scheme for procurement of farm machinery by individual farmers/ farmer's group (85%) and the role of *Panchayat* for achieving zero straw burning in the village (77.0%) whereas, 59.5 percent of respondents had incorrect knowledge about objective of the scheme, surveillance committee (58.5%). These results are comparable with the findings of Dhaka (2009) [3], Garg *et al.* (2012) [4] and Bharti (2014) [2].

Table 3: Knowledge of respondent's regarding different components of the scheme

Knowledge component	Response (%)				Total N-200	
	Bhiwani N-100		Kaithal N-100		Correct	Incorrect
	Correct	Incorrect	Correct	Incorrect		
Awareness of scheme- promotion of agriculture mechanization for <i>in-situ</i> management of crop residue management	100.0	0.0	100.0	0.0	200 (100.0)	0.0
Year of start	59.0	41.0	67.0	33.0	126 (63.0)	74 (37.0)
Implementing agency	62.0	38.0	65.0	35.0	127 (63.5)	73 (36.5)
Objectives of the scheme	39.0	61.0	42.0	58.0	81 (40.5)	119 (59.5)
Criteria for beneficiaries' selection	56.0	44.0	69.0	31.0	125 (62.5)	75 (37.5)
Provision of financial assistance for procurement of farm machinery by individual farmer/ farmer's group.	81.0	19.0	89.0	11.0	170 (85.0)	30 (15.0)
Procedure for getting benefits under this scheme	82.0	18.0	95.0	5.0	177 (88.5)	23 (11.5)
Mode of payment to beneficiaries	96.0	4.0	97.0	3.0	193 (96.5)	7 (3.5)
Farm machinery banks or Custom Hiring Centres (CHC)	90.0	10.0	88.0	12.0	178 (89.0)	22 (11.0)
Machine/implements available in CHC	97.0	3.0	95.0	5.0	192 (96.0)	8 (4.0)
Surveillance committee	36.0	64.0	47.0	53.0	83 (41.5)	117 (58.5)
Role of <i>Panchayat</i> for achieving zero straw burning in the village	73.0	27.0	81.0	19.0	154 (77.0)	46 (23.0)
Do you know that residue burning is an offence?	100.0	0.0	100.0	0.0	200 (100.0)	0.0
Do you know how much fine Government imposed on farmers indulging in crop residue burning?	88.0	12.0	86.0	14.0	174 (87.0)	26 (13.0)

Overall knowledge of the respondents about the scheme

Results in Table 4 clearly envisage that in Bhiwani 73.0 percent of the respondents had high knowledge scores about scheme and rest in medium category (27.0%). Mean and standard deviation of knowledge scores were 24.5 and 1.83 respectively. Similarly, in Kaithal more than half of the respondents had high (70%) knowledge scores about scheme followed by medium (27%) and only (3.0%) had low knowledge scores. Overall knowledge of respondents about scheme was high to medium. Mean and standard deviation of knowledge scores were 25.2 and 2.77 respectively. Similarly Roy and Kaur (2016) [8] study indicated that nearly 55 percent of the farmers knew about soil health improvement if paddy straw is applied in the soil whereas 41.67 percent had a medium and only 3.33 percent had a low level of knowledge on this aspect. And less than half of the farmers had a high overall knowledge followed by 46.67 percent who had a medium overall knowledge and only 5 percent had a low

overall knowledge and farmers were quite aware of the economic benefits of paddy straw and had been found to apply this knowledge for the cost-effective improvement of soil. These findings are in consonance with the study by Mohammad *et al.* (2015) [6], Jambhuwat (2017) and Archana & Balasbramanian (2019) [1].

Table 4: Overall knowledge of the respondents about the scheme

Knowledge category	Response (%)	
	Bhiwani	Kaithal
Low (14-18)	0.0	3.0
Medium (19-23)	27.0	27.0
High (24-28)	73.0	70.0
Mean	24.5	25.2
Standard Deviation (\pm)	1.83	2.77

Overall knowledge of the respondents about the scheme

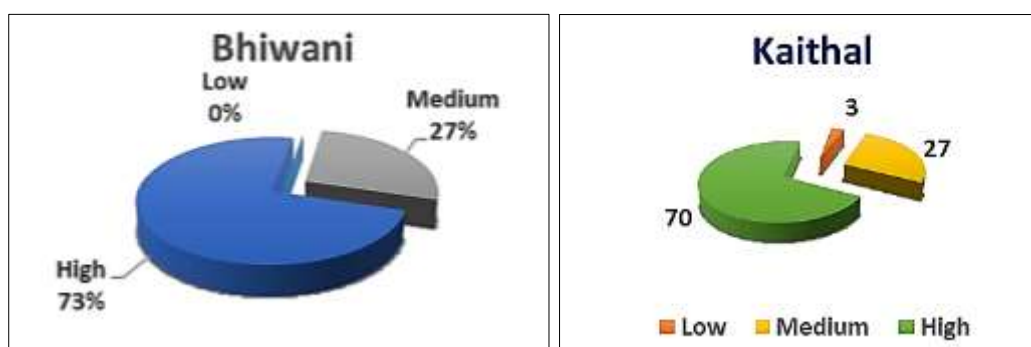


Fig 1: Overall knowledge of respondents about scheme

Relationship between independent variables with knowledge of respondents about scheme

Table 5 revealed that knowledge of the respondents had a positive and significant correlation with education of the respondents and negatively significant with age, monthly family income and farming experience. Similar results has been supported by Naberia *et al.* (2015) [7] who reported positive and significant correlation with mass media sources while negatively significant correlation was reported with age, monthly family income and farming experience. The results are also comparable with Roy and Kaur (2016) [8] who found that there was no significant relationship found between the socio personal and psychological variables of the West Bengal farmers and their knowledge level.

Table 5: Relationship between independent variables with knowledge of respondents about scheme

Variables	Correlation coefficient (r - value)	
	Bhiwani	Kaithal
Age (in years)	-0.415**	-0.489**
Caste	-0.029 ^{NS}	-0.249*
Education of respondent	0.710**	0.861**
Subsidiary occupation	-0.762**	-0.172 ^{NS}
Monthly family income	-0.259**	-0.210*
Farming experience	-0.430**	-0.489**

Significant at * $p < .05$ level of significance.

Summary and Conclusion

The study concluded various issues related to knowledge level of farmer respondents regarding various components of promotion of agriculture mechanization for *in-situ* management of crop residue management. Majority of the respondents had high knowledge scores about scheme, this clearly implies that government officials of agriculture department, mass media and sarpanch/*Panchayat* member were actively engaged in providing public awareness and capacity building campaign regarding availability of machines in CHC, farm machinery banks or custom hiring centres, provision of financial assistance under this scheme for procurement of farm machinery by individual farmers/ farmer's group and the procedure for getting benefits under the scheme.

References

1. Archana SS, Balasubramanian R. Awareness, knowledge and attitude of farmers towards soil health card schemes in Tamil Nadu. *Int. J Agril. Sci* 2019;11(9):8405-8407.
2. Bharti P. Impact Evaluation of Sampoorna Grameen Rozgar Yojna in Haryana. M.Sc. (Home Science) Thesis submitted to Chaudhary Charan Singh Haryana Agricultural University, Hisar 2014.
3. Dhaka S. Impact assessment of Mahatma Gandhi National Rural Employment Guarantee Act in Rural Haryana. Ph.D. (Home Science) Thesis submitted to Chaudhary Charan Singh Haryana Agricultural University, Hisar 2014.
4. Garg SK, Badodiya SK, Daipuria OP, Rawat U. Impact of Swarnajayanti Gram Swarozgar Yojna on Poverty Alleviation in Morar Block of Gwalior District. *Indian Research Journal of Extension Education* 2012;1:189-191.
5. Jambhuvant DS. Knowledge and attitude of farmers towards crop insurance scheme. M.Sc. (Agriculture) Thesis submitted to Vasanttrao Naik Marathwada Krishi Vidhyapeeth, Parbhani 2017.
6. Mohammad K, Seddeqi S, Srivastava JP, Bose DK. Adoption Behaviour of Saffron Growers in Pashtun Zarghon of Herat Province in Afghanistan. *Indian Journal of Extension Education* 2015;53(3&4):142-144.
7. Naberia S, Gautam US, Gupta AK. Psychological Characteristics Affecting the adoption of Agricultural Technologies. *Indian Journal of Extension Education* 2015;51(3):130-132.
8. Roy P, Kaur M. Assessment of Farmers' Knowledge about Beneficial Effects of Application of Paddy Straw onto Soil in West Bengal. *Punjab Journal of Community Mobilization and Sustainable Development* 2016;11(1):100-106.