ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 10, Issue, 03(G), pp. 31606-31609, March, 2019

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

KNOWLEDGE AND ADOPTION GAP IN BERSEEM FODDER PRODUCTION TECHNOLOGIES IN FARMERS' FIELDS IN UTTAR PRADESH PART OF BUNDELKAHND

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DOI: http://dx.doi.org/10.24327/ijrsr.2019.1003.3298

ARTICLE INFO

Article History:
Received 10th December, 2018
Received in revised form 2nd January, 2019
Accepted 26th February, 2019
Published online 28thMarch, 2019

Key Words:

Fodder, Farmers, Adoption gap, Berseem, Technology, Bundelkhand .

ABSTRACT

Forage crops play an important role in livestock production. The commonly available fodders are Lucerne, Berseem, Maize, Oats, Pearl millet, Cowpea, Sorghum, tree leaves and shrubs. Extension system had played a crucial role in enhancing milk production. However, there still exists a wide gap between the technology available with the research system and its' adoption at farmers' fields. Therefore, an effort was made to find out the adoption gap in fodder production in Bundelkhand region. The data was collected from 80 respondents by interview method with the help of pre -tested schedule from two districts of UP part of Bundelkhand. It was found that all the respondents grow berseem as a fodder in rabi season while 67.2 percent grow sorghum fodder in kharif and other crops like oats, barley, maize, guar etc grown by some respondents in the study area. For adoption of berseem production for fodder, the adoption gap was varied in different activities as a minimum for land preparation (16.25%) and maximum for Weedicide use as 95.56% and storage of fodder as 98.33% with average adoption gap was observed as 56.95%. The main reason for non adoption of fodder production technologies was small land holdings followed by less irrigation. The study further indicated that there was significant difference between knowledge and adoption gap with regard to adoption of fodder production practices.

INTRODUCTION

Live stock production is backbone of Indian agriculture and contributes about 4% of national GDP and source of employment and livelihood for 70% population in rural areas. India supports 20% of the world's livestock on only 2% of the world's geographical area. The Country holds 16% cattle, 55% buffalo, 20% goats and sheep population of the world. Owing to limited production from arable lands and the grasslands (the denuded grassland having grazing pressure 3.42 ACU/ha), it is a challenge to feed the increasing a fast change in resources, if comes from two sources. The first one is forage from arable lands i.e., cultivated forage which is not going beyond 4.9% of cultivated lands and Secondly from non-arable lands i.e., rangelands and grasslands including the forest areas. Thus, the total area including cultivated forages, rangelands and grasslands is much higher than the area under cultivated crops. Hence technological innovations in the direction of improving productivity and sustainability of these grasslands and rangelands and that of cultivated forages are likely to have significant impact on economic condition s of the poor and marginal farmers.

In India, 100 million ha is presently under utilized which includes 25-30 million ha of degraded forest lands, 45-50 million ha agricultural lands unsuitable of crops production, 9-10 million ha sodic wastelands and the rest ravines, pasture land and revenue wastelands. Grasslands in India have existed as natural eco-systems as far as 50 million years ago as evidenced by fossil records. However, many of the natural grasslands have degraded due to overgrazing. Large area has been converted to plantations/ protected areas/industrial establishment. In past the nomadic pastoralists were sedentarized, and the grasslands to wastelands they depend on were converted to agriculture which has lead to once productive grasslands to wastelands. A large proportion of Indian farmers are still dependent on 80.51 m ha or 535, 441 sq km^2 (17.32%of total land area) under grasslands 4.9% of the cultivated lands under cultivated forage s for their livelihood.

Berseem or Egyptian clover is a leguminous winter (Rabi) season, forage crops cultivated in 2 million hectares of North west zone, Hill zone and part of Central and Eastern zones of India. Besides many forage quality traits like high crude protein (20%) digestibility (65%) and palatability its also multicut in nature providing high quantum green fodder for a long duration. (Malviya, D.R. 2018).

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The forage crops play an important role in the production from animals. The commonly available fodder with rich nutritive value are like Lucerne, Berseem, Maize, Oats, Pearl millet, Cowpea, Sorghum, tree leaves and shrubs. Grassland, including rangelands and other grazing lands are among the largest ecosystems in the world and contribute the livelihoods of more than 800 million people. With only 2% of the world's geographical area, India supports 20% of the world's livestock. Extension system had played a crucial role in enhancing milk production. However, there still exists a wide gap between the technology available with the research system and its' adoption at farmers field particularly in the sphere of livestock feeding. Therefore, an effect was made to find out the adoption gap in fodder production in cultivation of animals rearing farmers in Bundelkhand region.

MATERIAL AND METHODS

This paper is based on studies, observation and experiences during the author's involvement in U.P. part of Bundelkhand. The research study was conducted in the purposively selected district of Uttar Pradesh part of Bundelkhand. Out of 7 districts, 2districts were selected purposively to represent all the regions of Bundelkhand on the basis of different land use, Agro-climatic condition, soil and livestock density. The data collected from 80 respondents with the help of structured schedule from two districts of UP part of Bundelkhand that is Jhansi and Lalitpur district. Two stage purposive random sampling was used; two villages were selected from each district as first stage sampling units. Twenty fodder growing farmers were selected from each village as second stage sampling units. The data were collected in year 2014 to 2015. This paper focuses on aspects related to farmers' knowledge on improved fodder production technology and adoption gap. The data collected were compiled, tabulated and subjected to the appropriate statistical tools to draw meaningful conclusions.

Socio-Economic Profile of the Farmers

Uttar Pradesh part of Bundelkhand

The analysis in table1 reveals that 6.25 % of the respondents were uneducated, followed by 22.5%, 32.5 %, 31.25 % and 7.5 % farmers had primary, Junior high school and Intermediate. None of the respondents were post graduate. On the basis of caste categories in studied area, 17.5 % respondents belonged to General category followed by 60.0 % , 22.5 % OBC and Scheduled castes. It was found from the table that average young age group of the respondents up to 30 years were 16.25 %, followed by 33.75%, 17.25% 30 to 40 years, respondents (middle age) and old age only above 60 years respondents were 6.25% . Majority of the joint families are found as 81.0 % in the selected villages. Majority of the farmers had land size up to 2 ha. That is 62.5 % and herd size of respondents are 2.1 buffalo /household and 0.9 cow /h in U.P. part of Bundelkhand. Majority of the farmers had used sources of information (under extension activities) in the fodder production technology like, Exhibition 35.0%, demonstration 31.25% regularly, field day/Kisan Mela/ field trip 27-28% and training 24.0% regularly. Majority of the farmers had participated (20 to 35 %) in the Social activities like Gram Sabha, Co-operative Society / Milk co-operative**,** Recreation Club Farmers Co-operative and, Recreation Club. Society 15 to 35 % .The results are indicated in Table1,2 and 3.

RESULT AND DISCUSSION

It was found that all the respondents grow Berseem as a fodder in rabi season while (67.2) percent grow sorghum fodder in kharif, other crops like oats, barley, maize, guar etc grown by very few respondents in study area. For adoption of berseem production for fodder, the adoption gap was varied in different activity as observed a minimum for land preparation (16.25%) and maximum for Weedicide use (95.56%) and storage of fodder (98.33%) with average adoption gap was observed as (56.95%) (Suman et.al.2017 and 2018). Similar findings were reported by Amtulwarid (1999),Nikhade 1997). The main reason for non adoption of fodder production technologies was small land holdings followed by less irrigation and Anna-pratha (Uncontrolled grazing). The study further indicated that there was significant difference between knowledge and adoption gap with regard to adoption of fodder production practices. It was found from that the correlation between knowledge gap and adoption gap was highly significant and positive (range as 0.547 to 0.953**). A** few observations are indicated in Table-3. Thus, to improve the availability of fodder area in the region, efficient irrigation methods should be adopted and more training programmes should be initiated to motivated farmers about the role and importance of fodder crops to their livelihood and alternated source of income. A Results are indicated in Table 4,5 and 6.

CONCLUSION

In the conclusion, it can be concluded that small land holdings followed by lack of irrigation are the major reasons for less adoption of fodder production technology in area. The gap in knowledge and adoption regarding various activities in fodder production technology from sowing to harvesting and storage varied (land preparation and seed rate for sowing lowest gap and storage of fodder crops knowledge in technology highest gap in both district of UP part Bundelkhand. The increase in knowledge gap leads in increase in the adoption gap in fodder crops for berseem fodder. With the increase in the knowledge as personal interaction method, Demonstration, group discussion and Mass media and digital app etc, adoption of fodder technology gap may be reduced.

Table 1 General information based classification of the respondents in U.P.Part of Bundelkhand

S.No.	Parameters	Percentage of respondents
	Age	
1	0-30 Yrs.	16.25
2	30 - 40	33.75
3	40 -50	26.25
4	50 -60	17.5
5	60 above	6.25
	2. **Education**	
1	Illiterate	6.25
2	Primary	22.50
3	Junior High School	32.50
4	Intermediate	31.25
5	Graduate	7.50
6	Post Graduate	0.00
	3 **Cast**	
1	General category	17.50
2	Other Backward category	60.00
3	Schedule Castes	22.50

4	Schedule Tribes	0.00
	4 Family	
1	Nucleus	18.75
2	Joint	81.25
	5 Land Size	
1	Up to 5 Acres	40.00
2	5 -10 acres	22.50
3	10 -15 Acres	5.00
4	15 -20 Acre s	6.25
5	Above 20 acres	3.75

Table 2 Extension Participation of the respondents in U.P. part of Bundelkhand

S no.	Source of information	Overall % of respondents
	1- Demonstration	
1	Regular	31.25
2	Occasionally	38.75
3	Never	30.00
	2-Exhibition	
1	Regular	35.00
2	Occasionally	26.25
3	Never	38.75
	3-Field Day	
1	Regular	28.75
2	Occasionally	42.5
3	Never	28.75
	4-Farmers Goshthi	
1	Regular	21.25
2	Occasionally	38.75
3	Never	40.00
	5-Mahila Goshthi	
1	Regular	33.75
2	Occasionally	27.5
3	Never	38.75
	6-Kisan Mela	
1	Regular	27.5
2	Occasionally	47.5
3	Never	25.00
	7-Field Trip	
1	Regular	23.75
2	Occasionally	22.5
3	Never	53.75
	8-Training	
1	Regular	23.75
2	Occasionally	21.25
3	Never	55.00
	9-Group Meeting	
1	Regular	16.25
2	Occasionally	66.25
3	Never	17.5

Table 3 Social Participation analysis of the respondents in U.P.

Sl.	Particular	Overall % of respondents
	1-Gram Panchayat	
1	Regular	**5.0**
2	Occasionally	**30.0**
3	Never	**65.0**
	2-Gram Sabha	
1	Regular	**17.5**
2	Occasionally	**18.75**
3	Never	**63.75**
	3-Co-operative Society	
1	Regular	**25.0**
2	Occasionally	**30.0**
3	Never	**45.0**
	4-Milk Co- operative	
1	Regular	**25.0**
2	Occasionally	**42.5**
3	Never	**32.5**
	5-Farmers Co-operative	
1	Regular	**25.0**
2	Occasionally	**42.5**
3	Never	**32.5**
	6-Youth Club	
1	Regular	**13.75**
2	Occasionally	**37.5**
3	Never	**48.75**
	7-Recreation Club	
1	Regular	**22.5**
2	Occasionally	**42.5**
3	Never	**47.00**
	8-Radio listeners	
1	Regular	**35.00**
2	Occasionally	**28.75**
3	Never	**36.25.**

Table 4 Technological gap (%) in fodder production technology according to various activities for Berseem in U.P. part of Bundelkhand.

S.No.	Activities	U.P.	
		Knowledge Gap (%)	Adoption gap (%)
1.	Land Preparation	11.04	16.25
2.	Crop Varieties	22.50	40.42
3.	Sowing of fodder crop	38.33	51.67
4.	Seed rate	13.33	21.67
5.	Seed treatment	41.67	73.33
6.	Irrigation	18.33	28.75
7.	FYM and fertilizer application	25.36	38.91
8.	Intercultural operation	25.83	64.58
9.	Weedicide and Pesticide	66.32	95.56
10.	Harvesting	30.21	83.33
11.	Storage	82.08	98.33
	Overall gap	36.44	56.95

Table 5 Constraints suggested by farmers regarding Less –adoption of fodder production technologies in Berseem in Bundelkhand.

SL.	Items	%	Rank
1	Non availability of good quality of seed	54.9	V
2	Lack of Irrigation	78.87	II
3	Anna Pratha	62.15	IV
4	Small size of land holdings	84.1	I
5	High cost of seed	35.15	VIII
6	Lack of Guidance/Knowledge	44.2	VI
7	Shortage of Inputs	38.2	VII
8	Less priority to fodder crops	77.15	III

Table 6 Correlation between knowledge gap and adoption gap in fodder production technology in berseem.

District	Berseem crop, r (Co-relation)
Jhansi	0.946
Lalitpur	0.848
U.P.	0.869

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How to cite this article:

Manju Suman *et al*., 2019, Knowledge and Adoption Gap in Berseem Fodder Production Technologies in Farmers' Fields in Uttar Pradesh Part of Bundelkahnd. *Int J Recent Sci Res.* 10(03), pp. 31606-31609.
DOI: http://dx.doi.org/10.24327/ijrsr.2019.1003.3298

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