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KNOWLEDGE OF FARMERS ABOUT WATERSHED TECHNOLOGY

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ABSTRACT

Watershed means a piece of land that drains at a common point and where all soil-water conservation and production activities are to be performed by providing soil and water conservation technology to the farmers and educating them about improved crop production technology. It was observed that according to practicewise knowledge level of farmers, majority (more than 50%) of BFs (beneficiary farmers) had poor to less knowledge where as more than 75 per cent NBFs(Non-farmers) had poor to less knowledge about watershed technology.According to watershed wise , the highest Knowledge level of BFs of manaksas watershed was found among eight watersheds, followed by Papurna, Agarpura, Tigaria, Nangal, Bhagatpura, Balera and Ghanghu.Incase of NBFs, Knowledge level of Nangal watersheds' adjoining area was found highest among eight watershed areas followed by Bhagatpura, Tigaria, Agarpura, Papurna, Ghanghu, Balera and Manaksas.

INTRODUCTION

Watershed is a geo-hydrological unit or an area with a common drainage point, implying that all the rainwater falingwithin watershed flows through one or more natural courses and converges at a common point. It essentially relates with soil and water conservation which means proper land use, protecting land against all forms of deterioration, building and maintaining soil fertility, conserving water for farm use and proper water management for increasing productivity from all land uses. Soil and water conservation practices have been accepted as of the important inputs for increasing agricultural production in the country. National Watershed Development Project for Rainfed Areas (NWDPRA, 1986-87) was implemented in unirrigated arable lands mostly falling in the rainfall range of 500 to 1125 mm and also above. NWDPRA is a centrally sponsored scheme implemented by ministry of agriculture for development of watershed in rainfed area, in blocks having less than 30 per cent arable area under assured means of irrigation aiming to generate sufficient employment to put a halt on migration from rural areas to crowded urban areas to conserve precious rain water and top fertile soil, to increase yield of food, fuel, fodder, fiber by promoting vegetative conservation measures through people's participation so as to have ecological balance and socio-economic development with sustainability in the watershed. Watershed technology are those identified or scientifically derived soil an after conservation practices, crop production and household production system, livestock management etc. which are recommended by the Department of watershed/Agriculture or RAU scientists to the farmers for adoption in their farming system. The present study was conducted to find out knowledge of the beneficiary and non beneficiaries farmers about watershed technology.

RESEARCH METHODOLOGY

The study was conducted in three watershed divisions viz.; Jaipur, Jhunjhunu and Sikar of Jaipur region of Rajasthan purposely based on highest number of watersheds and also having having similar conditions like soil, moisture conservation and cultivation practices. These three watershed divisions comprised seven watershed districts viz., Alwar, Churu, Dausa, Jaipur, Jhunjhunu, Hanumangarh and Sikar. Out of these,four districts namely Churu, Jaipur, Jhunjhunu and Sikar were

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selected purposely because these districts had comparatively higher number of watershed . Two watersheds from each selected district i.e. watershed Balera and Ghanghu from district Churu,Manaksas and Papurna from district Jhunjhunu,Bhagatpura and Nangal from Sikar ,Agarpura and Tigaria from district Jaipur were selected randomly .In this way total number of 8 watersheds were selected from four selected districts. Twenty beneficiary farmers (BFs) from each selected watershed area, who benefitted under this project and twenty non-beneficiary farmers (NBFs) from nearby areas of each selected watershed who resembled the similar socio-economic conditions but did not receive any direct benefits from the project were selected on the basis of sequential method of random sampling. Thus the study sample was consisted of 160 beneficiary and 160 non-beneficiary farmers as respondents. Thus the study sample consisted of 320 respondents .To study in depth, the knowledge Level of respondent farmers about watershed technology of NWDPRA was categorized and finalized on the basis of experts' opinion. In this regard, the twenty experts of Department of Extension Education of MPUAT, SKRAU, and WD & SC were requested to give their opinion for categorizing the knowledge about watershed technology of NWDPRA and were categorized as under:

20 per cent	–	Less	knowledge
21-40 per cent	–	Poor	knowledge
41-60 per cent	–	Fair	knowledge
61-80 per cent	–	Good	knowledge
More than 80 per cent	–	Excellent	knowledge

The percentage of each category was finalised and standardized on the basis of their opinion whether these categories are suitable or not for studying the knowledge of respondents.

RESULTS AND DISCUSSION

Practicewise and Watershed wise knowledge level of BFs and NBFs about watershed technology of NWDPRA was measured.

(i) Practicewise knowledge level :

The knowledge level of respondent farmers was elaborated according to knowledge category about conservation and production technology of NWDPRA which is presented in Table 1. The value indicates that 9.36 per cent BFs had less knowledge about conservation practices of NWDPRA while 7.18, 4.23, 3.81 and 1.61 per cent BFs had fair, poor, good and excellent knowledge about conservation practices of NWPDRA, respectively. Figures in Table 1 also reveal that 20.836, 18.60, 15.48, 14.05 and 4.85 per cent BFs had poor, less, fair, good and excellent knowledge about production technology of NWDPRA, respectively. Further the table indicates that 25.06, 27.96, 22.66, 17.86 and 6.46 per cent BFs had poor, less, fair, good and excellent knowledge about over all watershed technology of NWDPRA, respectively.

Table 1. Practicewise knowledge level of BFs and NBFs of NWDPRA about watershed technology (in percent)

Name of technology	Knowledge level categories				
	Poor	Less	Fair	Good	Excellent
Beneficiary farmers					
Conservation	4.23	9.36	7.18	3.81	1.61
Production	20.83	18.60	15.48	14.05	4.85
Over all	25.06	27.96	22.66	17.86	6.46
Non-beneficiary farmers					
Conservation	14.18	5.68	3.41	2.2	0.71
Production	3.18	22.88	12.56	7.04	1.16
Over all	44.36	28.56	15.97	9.24	1.87

As far as NBFs are concerned, Table 1 reveals that 14.18, 5.68, 3.41, 2.2 and 0.71 per cent NBFs had poor, less, fair, good and excellent knowledge about conservation practices ,respectively .While 3.18, 22.88, 12.56, 7.04 and 1.16 per cent respondents had poor, less, fair, good and excellent knowledge about watershed technology, respectively. Further it indicates that 44.36, 28.56, 15-97, 9.24 and 1.87 per cent NBFs had poor, less fair, good and excellent knowledge about overall watershed technology, respectively. The data in Table 1 reveal that majority of the BFs had less to fair knowledge about conservation technology while NBFs had poor to less knowledge. As far as production technology is concerned most of the BFs had poor to good knowledge while NBFs had poor to less knowledge. The data in Table 1 depict that more than half of the BFs had poor to less knowledge while more than 75 per cent of NBFs had poor to less knowledge about watershed technology. It could be concluded that BFs had higher knowledge than NBFs. This might

be due to the fact that most of BFs were covered under the watershed activities of NWDPRA and they were convinced about watershed technology. Respondents were also found to express higher knowledge about production technology than conservation technology. This might be due to the fact that farmers were more interested to take production from their land for their livelihood than to conserve it for future. The findings are in accordance with the findings of Karkar (1998), Lal (2000) and Padmavathi *et al* (1998).

(ii) Watershedwise knowledge level :

The watershedwise knowledge level of BFs and NBFs about watershed technology was also reported on five point continuum knowledge category. The data in Table 2 reveal that among eight watersheds, BFs of *manaksas* watershed had the highest overall knowledge about watershed technology, hence it was ranked first, in which 28.57 per cent respondents had less knowledge, 26.55 per cent had fair knowledge, 20.863 per cent had good knowledge and 17.98 per cent had poor knowledge about watershed technology. The second rank was assigned to *Papurana* (2.54) watershed and third, fourth, fifth, sixth, and seventh ranks were awarded to the *Agarpura* (2.52), *Tigaria* (2.44), *Nangal* (2.28), *Bhagatpura* (2.17) and *Balera* (2.16), respectively. The lowest rank was accorded to the *Ghanghu* (2.15) watershed in which 30.36 BFs had less knowl4dge whereas 28.33 per cent, 21.31 per cent, 15.24 per cent and 4.76 per cent had poor, fair, good and excellent knowledge about watershed technology, respectively.

Therefore, it could be concluded that the BFs of *Manaksas* watershed were having the highest overall knowledge about watershed technology. This might be due to the fact that *Manaksas* watershed was complete watershed, where all the watershed activities (technology) were implemented by the field functionaries sincerely, efficiently and accurately. It could also be concluded that lowest knowledge about watershed technology was reported among BFs of *Ghanghu* watershed.

Table 2. Watershedwise knowledge level of BFs and NBFs of NWDPRA about watershed technology (per cent)

S. No.	Name of watershed	Knowledge level categories					Mean Score	Rank
		Poor	Less	Fair	Good	Excellent		
Beneficiary farmers								
1.	Balera	32.38	23.69	21.78	16.79	5.36	2.16	VII
2.	Ghanghu	28.33	30.36	21.31	15.24	4.76	2.15	VIII
3.	Manaksas	17.98	28.57	26.55	20.83	6.07	2.56	I
4.	Papurna	18.58	28.45	27.38	18.33	7.26	2.54	II
5.	Bhagatpura	27.74	33.10	18.93	15.71	4.52	2.17	VI
6.	Nangal	27.50	28.45	20.83	16.31	6.91	2.28	V
7.	Agarpura	23.34	24.76	22.38	20.59	8.93	2.52	III
8.	Tigaria	24.64	26.31	22.14	19.05	7.86	2.44	IV
Non-beneficiary farmers								
1.	Balera	49.05	26.67	15.83	5.83	2.62	1.86	VI
2.	Ghanghu	45.95	33.09	6.473	12.86	1.67	1.91	V
3.	Manaksas	45.12	30.56	19.64	3.57	1.31	1.86	VI
4.	Papurna	42.5	31.31	16.90	8.22	1..07	1.94	IV
5.	Bhagatpura	40.24	28.69	16.07	12.5	2.5	2.08	II
6.	Nangal	41.07	26.43	17.74	11.43	3.33	2.10	I
7.	Agarpura	46.43	24.88	17.98	9.64	1.07	1.94	IV
8.	Tigaria	44.52	27.02	17.14	9.89	1.43	1.97	III

It might be due to the fact that Ghanghu watershed was an integrated watershed where limited and selected watershed activities were implemented. As far as NBFs are concerned, it is evident from table-2 that the NBFs of *Nangal* watershed area had the highest knowledge mean

score (2.10), hence it was ranked first, in which 41.07 per cent respondents had poor knowledge about watershed technology while 26.43 per cent, 17.74 per cent, 11.43 per cent and 3.33 per cent respondents had less, fair, good and excellent knowledge about watershed technology respectively. The second, third, fourth and fifth ranks were awarded to the respondents of *Bhagatpura* (2.8), *Tigaria* (1.97), *Agarpura* and *Papurana* (1.94) and *Ghanghu* (1.91) watershed, respectively. The last rank was assigned to Balera and *Manaksas* watershed (1.86) with respect to knowledge level of NBFs about watershed technology. It could be concluded that the NBFs of *Nangal* watershed were having the highest knowledge of watershed technology among eight watershed area. This might be due to the fact that *Nangal* watershed is near to headquarter and watershed technology might be disseminated quickly among NBFs. It could also be concluded that NBFs of *Balera* and *Manaksas* watershed area were having the lowest knowledge. This might be due to the fact that watershed were located far away from headquarter and the field functionaries could spare comparatively less time to disseminate the watershed technology to the adjacent area.These findings are supported by the findings of Karkar (1998) ,Lal (2000) and Padmavathi et al (1998).

CONCLUSION

According to conservation practicewise knowledge level, It was concluded that 9.36 per cent BFs had less knowledge and 1.61 per cent BFs had excellent knowledge whereas 14.18 per cent NBFs had poor knowledge and 0.71 per cent had excellent knowledge where as in production practices, 27.96 per cent BFs had less knowledge and 6.46 per cent had excellent knowledge whereas 30.18 per cent NBFs had poor knowledge and 1.16 per cent NBFs had excellent knowledge. According to practicewise, the BFs of manaksas watershed had the highest overall knowledge about watershed technology. BFs of Bhanghu watershed had lowest overlal knowledge about watershed technology.In case of NBFs respondents of Nangal watersheds' adjoining areas had the highest level of knowledge whereas NBFS of Balera and Manaksas (1.86 MS) watersheds adjoining areas had the lowest overall knowledge about watershed technology.

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