

FARMERS PERCEPTION REGARDING EFFECTS OF SEWAGE WATER ON CROP AND HUMAN HEALTH

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ABSTRACT

The present study was conducted in Pune district of Maharashtra state. The list of farmers obtained from Two Tahsil of Pune district. The total number of farmers selected randomly which was 80. The data was collected by interviewing 80 farmers with the help of well designed and pre-tested schedules. Majority of the respondents were included in middle age group with education level up to secondary school with small size of land holding with annual income in between ₹ 1,50,000 to 4,00,000 with 10 to 36 years of farming experience, medium level of sources of information, medium level of social participation, medium level of risk orientation, medium level of economic motivation and also medium level of managerial ability with medium level of knowledge.

Keyword: knowledge level, economic motivation, risk orientation, managerial ability

INTRODUCTION

Water is the foremost important and essential input required in adequate amount to run the agriculture sector. The water demand for agriculture sector is increasing day by day due to intensive agriculture however, in contrast to that is availability is reducing day by day due to erratic, infrequent, insufficient and less rain through monsoon, Further, more use of irrigation water, high water demanding crops, monocrops, consistent growing of similar crop on same land, faulty irrigation methods etc. are the major reasons for the scarcity of the irrigation water, Therefore, it is very essential to find out the alternate way for tapping other source of water for agriculture. Sewage water is major alternate source of water which can be used safely after treatment. Treated and untreated sewage water availability in major cities of India is increasing day by day. This sewage water is being widely used by farmer in sub-urban areas around metro cities for growing vegetables. According to recent estimates, it has been found in India that sewage water annually irrigated about 1.5 million hectares of land and have potential to contribute about one million tons of essential nutrients because of its high available and soluble essential nutrients this water is producing good yield with Mula-mutha is the river in Pune which later meets the Bhima River. Due to high level of water pollution including 125 MLD (million Liter per Day) of untreated sewage water discharged into river by the Pune Municipal Corporation. Considering increased pollution 'Pune municipal corporation' has constructed 6 new sewage treatment plants. This treated water then discharge into river but as river move forward towards Haveli and

Daund tahsil it affected due to effluent drained into river from different chemical and fertilizers companies. In these tehsils lots of farmers in villages continuously use sewage water for cultivating vegetables. However, increasing adverse effects on soil, crop and also on human health through residual effect while consuming vegetables. The systematically designed research study with reference to knowledge about adverse effect of sewage water by vegetable growers in Pune region has not been conducted so far. Therefore, it was necessary to study Knowledge of vegetable growers about adverse effect of sewage water with this background, the present study was conducted with following specific objectives.

OBJECTIVE

To know the farmers regarding effects of sewage water on crop and human health

METHODOLOGY

Pune district consists of thirteen tahsils (Junnar, Ambegaon, Rajgurunagar, Maval, Mulashi, Daund, Bhore, Velhe, Purandar, Baramati, Haveli, Shirur, Indapur) out of this Haveli and Daund these two tahsils was purposively selected because it shares major area under vegetable cultivation which grown on the highly polluted water of Mula-Mutha river. Four villages from Haveli and Daund tahsils were selected considering the maximum area under vegetable cultivation grown on Mula-Mutha river which polluted from industries sewage water and different type of effluent. Based on the information obtained from the Taluka Agriculture Officer. Thus, in all 8 villages were selected.

RESULTS AND DISCUSSION

Profile of sewage water users in Pune district

It was observed that majority (50.00 per cent) of the respondents was in the “middle” age group and their average age was 46.00 years. As regards education, a maximum number (37.50 per cent) of the respondents had completed “Secondary” followed by “College” education (25.00 per cent). Amongst the respondents, 31.25 per cent and 28.75 per cent had “marginal” and “Semi-medium” land holdings, respectively. The average land holding of the respondents was 1.75 ha. It is revealed that, majority number (46.25 per cent) of the respondents had “medium” annual income. The

average annual income of the respondents was Rs. 3.77 lakh. Regarding experience in crop cultivation, 43.75 per cent of the respondents had “medium” experience in crop cultivation. On an average, the respondents had 19 years of experience in vegetable cultivation. Maximum numbers of the respondents (58.75 per cent) were in the “medium” category of social participation. Majority of the respondents (60.00 per cent) were in the category of “medium” source of information. Whereas, 57.50 per cent of the respondents had “medium” risk preference and 74.75 per cent of the respondents in the “medium” category of economic motivation also 63.75 per cent of farmers had “medium” level of managerial ability.

Knowledge of Sewage water users about effect on vegetables and crops.

Table 1: Distribution of the respondents according to Knowledge about adverse effect of sewage water

n=80

Sr.No.	Adverse effects of Sewage water	Yes	No
A	Adverse effects on crops		
1	Bad smell to the crops after harvesting.	43(53.75)	37(46.25)
2	Black spots are observe at the base of crops.(e.g.Carrot, Raddish)	45(56.25)	35(43.75)
3	Leaves become blackish/yellowish	50(62.50)	30(37.5)
4	Less keeping quality of vegetables.	49(61.25)	31(38.75)
B	Adverse effects on soil		
1	Black colour layer on soil surface.	62 (77.5)	18(22.5)
2	Soil becomes spongy.	25 (31.25)	55(68.75)
3	Soil colour change after continuous use of sewage water.	18 (22.5)	62(77.5)
4	Decreases the bio-diversity of soil due to harmful chemical content in sewage water.	21 (26.25)	59(73.75)
C	Adverse effect on Human Health		
1	Children are succceptible toHookworms.	20 (25.00)	60 (75.00)
2	Stomach problem observed tohuman being and animal	16 (20.00)	64 (80.00)
3	Constipation problem observed in human being.	27 (33.75)	53 (66.25)
4	Headache problem seen after eating vegetables.	35 (43.75)	45 (56.25)
5	Itching on skin observed after harvesting of vegetables.	40 (50.00)	40 (50.00)
6	Muscle pain observed after residual effects of sewage water through vegetables.	56 (70.00)	24 (30.00)
7	Loss of hairs due to eating of vegetables.	23(28.75)	57 (71.25)

Note : figures in bracket indicates the per centage

In case of knowledge regarding, adverse effects of sewage water on human health, majority of the respondents (70.00 percent) were knowledge about ‘Muscle pain’, followed by ‘Itching of skin’ (50.00 percent) due to continuous effects of sewage water. It is observed that vast majority of farmers affected by residual effects of sewage water which

consumed through vegetables growing on that polluted water. In that, (43.75 percent) respondents have knowledge about the ‘headache due to residual effects of sewage water’, followed by (28.75 percent) ‘loss of hairs’ due to constantly use of sewage water directly. It is also observed that majority farmers (80.00 percent) have less knowledge about the

‘Stomach problem due to sewage water’ (75.00 percent), after that, farmers were unaware about that knowledge about the ‘effects of polluted water on children those are affected by hookworm’ (75.00 percent).

Regarding the effect of sewage water on crops, about (62.50 percent) of respondents have aware about ‘leaves of crops especially leafy vegetables get affected by sewage water use’ followed by (61.25 percent) farmers know that constantly ‘use of sewage water adversely affected on durability of crops.’ More than half per.cent farmers (56.25 percent) had knowledge about the ‘black spot observed on vegetables like carrot, raddish etc. due to use of polluted water. Most of the farmers (46.25 percent) unaware about the ‘harvesting of crops which are irrigated with sewage water and produced bad smell after harvesting’. In the case of adverse effect on soil, more than two-third of farmers (77.5 percent) know that the ‘black colour layer on soil surface formed due to flow of sewage water.’ Most of the respondents 77.5 per. cent unknown about changes in soil colour due to effects of

polluted water. Also, it is found that majority of farmers(68.75 percent) unaware about the ‘soil becomes spongy’.

Practices adopted by farmers to minimize the residual effect of sewage water on crop and human health.

Regarding the minimizing the residual effect of sewage water Majority of respondents (76.25 percent) said that ‘proper used practices of irrigation practices reduce the adverse effects of polluted water’ followed by, majority of respondents (72.50 percent) suggested that ‘use of different resistant varieties of different crops for the sewage water.’ besides that 85.00 per.cent respondents not known about the seriousness of water sampling before use for irrigation. 95.00 per.cent farmers not used chemicals for treating that sewage water. On other hand,87.50per.cent farmers not checked chemical content in soil for specific crop. followed by, people not analyzed micronutrients per.cent before applying sewage water to field. Only 11.25 per.cent of respondent thinking about use of alternate source of water.

Table 2: Distribution of the respondents according to the practices adopted by farmers to minimize the residual effect of sewage water on crop and human health.

Sr. No.	Different measures adopted to minimize residual effect Sewage water	Yes	No
1	Use of Sewage water filtration System for treating sewage water.	12 (15.00)	68 (85.00)
2	Use specific varieties of different Crops.	58 (72.5)	22 (27.5)
3	Use of proper irrigation schedulepractices.	61 (76.25)	19 (23.75)
4	Use of alternate source of water for irrigation.	09 (11.25)	71 (88.75)
5	Use of sewage water by treating it with chemicals.	04 (5.00)	76 (95.00)
6	Soil sample must be check to know The harmful content in soil before sowing of particular crop.	10 (12.50)	70 (87.50)
7	Water sample testing for appropriate dose of fertilizer to the crop.	12 (15.00)	68 (85.00)

Note : figures in bracket indicates the per centage

CONCLUSION

Majority of the farmers belonged to the middle age group and had received secondary education, having marginal land holding and followed by semi medium, medium income group, medium experience in vegetable cultivation, had medium social participation, medium source of information, medium risk orientation, medium economic motivation with medium managerial ability. Majority of farmers possessed medium knowledge about adverse effect of sewage water.It

is clear that majority of the respondents had medium level of knowledge about adverse effects of sewage water. Most of them were not aware about the adverse effects of sewage water on soil health, living creature, human health, children’s health, residual effect of sewage water on human beings as well as pregnant women. The vegetable growers might have understood one side of the sewage water i.e. their effects in adding the micronutrients in soil but most of them were unaware about the other side of sewage water use i.e. their

adverse effects. The farmers must know both the sides of the sewage water use and they should make the balanced use of sewage water by considering their long term effects on human health and environment. Majority of the farmers had knowledge regarding general adverse effects of sewage water but they were not able to understand the specific scientific concepts regarding the sewage water residual hazards.

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Received : August 2016 : Accepted : November 2016