

Knowledge Level of Agricultural Officers regarding Sustainable Agricultural Practices in Uttar Pradesh

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ABSTRACT

In order to enhance food grain production there has been over exploitation of natural resources and due to which land, water and soil have been subjected to great stress resulting in soil degradation, soil erosion, salinity and alkalinity, shifting cultivation and nutrient losses. Hence, the concept of sustainability has emerged as an alternative for long term sustainable production and economic viability of Indian agriculture. The study was conducted in Kanpur Nagar district with 50 AOs in order to assess their knowledge on sustainability. Agriculture officers possessed very good knowledge on soil and water conservation, integrated nutrient management, integrated weed management aspects, whereas in case of integrated water management there was low level of knowledge. The overall knowledge analysis shows that majority (50%) of AO possessed medium level of knowledge whereas a good number (40%) were having higher level of knowledge. It was observed that education, occupation, job experience, information source use, level of aspiration had shown positive correlation with knowledge level of the AOs.

Key Words: Sustainable agricultural practices; Integrated nutrient management; Integrated weed management;

In our effort to increase the food grain production, land, water and soil resources have been subjected to great stress and in appropriate land use has resulted in soil degradation, soil erosion, salinity and alkalinity, shifting cultivation and nutrient losses. It is estimated that 6,000 million tons of soil containing about 8.4 mt of plant nutrients are annually lost through erosion. Salt affected and water logged area account for approximately 7mha and 6mha, respectively which means that valuable land with irrigation potential is lost. Degraded soil, ill drained field, shifting cultivation and salinity constitute serious cause of low or declining productivity and raise serious concern regarding sustainable agriculture in the country. Sustainability is an issue of the inter-generational equity involving restoration and conservation of resources. Over exploitation of natural resources for enhancing food grain production under favourable environment has not provided much support to the resource condition for growth and this has obviously resulted in inter regional and inter generational equity problem. The inexorable and lopsided pace of industrial and urban development has led to a sizeable reduction in fertile land and deterioration in the quality of water. In other words

agricultural development experience over the past 40 year exhibit little or only a limited concern for long term sustainability and economic variability of Indian agriculture. "Sustainable agriculture is that form of farming which produces sufficient food to meet the needs of present generation without eroding the ecological assets and the productivity of the life supporting system in future generation." Sustainability has evolved a lot from its original meaning of "ability to continue". Brundtland commission concept of sustainability referred to development that meets the needs of the present without compromising the ability of generations to meet their needs (Yadav *et al*, 2008). In the present context, it is of utmost importance that the sustainability dimensions of the developed and transferred technologies should be looked into and each new technology needs to be developed for future should satisfy the concept and dimensions of sustainability (Ram Chand and Gosian, 1998). Further, knowledge is one of the important components of human behaviour. Extension workers are like the nervous system in the process of rural development. There is a great responsibility on the shoulder of agriculture officer (AO's) who are in the field of extension. AO's should

have through knowledge on sustainable agricultural practices, which preserve and/or enhance the environment. A systematic study was undertaken to assess the knowledge level of agricultural officers about sustainable agricultural practices.

METHODOLOGY

The study was conducted in Kanpur Nagar district of Uttar Pradesh. The Directorate of Extension, C.S.A University, Kanpur regularly organizes training programmes for extension personnel. All the Agriculture Officers (AOs) in position from the selected district were taken as the respondents for the study. Therefore, a total of 50 AOs were selected for the study. The data were collected by personal interview method.

RESULTS AND DISCUSSION

It is revealed from the above table 9 that the items meaning of soil conservation, wind break, stabilization of bund and barriers across the field stop were known by per cent of the agricultural officer. The data department of agriculture, U.P. is providing in service training of soil and water conservation for the duration of thirty days at soil and water conservation trial and the training might have helped the agricultural officers in acquiring better knowledge. Moreover the trained persons might have shared their views with other agriculture officers during ADA monthly meetings. Thus, it can be concluded that majority of the agriculture officers were had good knowledge about soil and water conservation practices.

Table 1. Knowledge items related to soil and water conservation

S. No.	Statement	Known		Unknown	
		N	%	N	%
1.	Formation of dead furrow for soil and water conservation	46	92.0	4	8.0
2.	Stabilization of bund	50	100.0	0	-
3.	The field slope at which agronomic measure recommended	42	84.0	8	16.0
4.	Important cover crop for checking soil erosion	48	96.0	2	4.0
5.	Suitable live barriers	50	100.0	0	-
6.	Wind break	50	100.0	0	-
7.	Meaning of soil conservation	50	100.0	0	-
8.	Meaning of water shed	48	96.0	2	4.0
9.	Mean	48	96.0	2	8.0

Table 2 : Knowledge items related to water management

S. No.	Statement	Known		Unknown	
		N	%	N	%
1.	Quality of irrigation water in terms of electrical conductivity	18	36	32	64
2.	The stage of crop at which irrigation in schedule is scarce	26	52	24	48
3.	Soil moisture sensitive stage	16	32	34	68
4.	Efficient method of irrigation	38	76	12	24
5.	Suitability of soil for broad bed and furrow method of irrigation	22	44	28	56
6.	Water harvesting in arid zone	44	88	16	32
7.	Mean	27.33	54.66	24.33	48.66

It is observed from the Table 2 that in case of water conservation, 88.0 per cent agricultural officers knew the practice like water harvesting in arid zone followed by 76.00, 52.00, 44.00 36.00 and 32.00 per cent of the agricultural officer knew the practices like efficient method of irrigation; the stage of crop at which irrigation schedule is scarce, Suitability of soil for broad

bed and furrow method of irrigation; quality of irrigation water and soil moisture sensitive stage, respectively. However, on quality of water used for irrigation in terms of electrical conductivity a considerable proportion (41.18%) of the agriculture officers were not aware. Thus, it can be concluded that the agricultural officers did not possess good knowledge on water management.

Table 3. Integrated nutrient management and cropping system

S. No.	Statement	Known		Unknown	
		N	%	N	%
1.	BC status of legumes stabilization of bunds.	37	74	13	26
2.	Content of Ca and P in vermi-compost	38	76	12	24
3.	Bio-fertilizer recommended for pulse crop.	32	64	18	36
4.	Quantity of bio-fertilizer	16	32	34	68
5.	Method of inoculation of bio-fertilizer	12	24	38	76
6.	Usual close of Blue green Algae	42	84	08	16
7.	Time of application of Blue green	36	72	14	28
8.	Gram leaf manorial plant	48	96	2	4
9.	Desirable cost benefit ratio	14	28	36	72
10.	Objective of mixed farming	40	80	10	20
11.	Mean	31.5	63	18.5	37]

Table 4. Knowledge items related to integrated pest management

S. No.	Statement	Known		Unknown	
		N	%	N	%
1.	Thuricides used against moth pest	8	16	42	84
2.	Thuricides mode of action	6	12	44	88
3.	The load of pest population at which pesticide is recommended	10	20	40	80
4.	Popular bactericide	5	10	45	90
5.	Popular egg parasite	9	18	41	82
6.	Place of parasite breeding station	30	60	20	40
7.	Meaning of IPM	50	100	0	0
8.	Parasite use to break pest multiplication	46	92	4	8
9.	Method of pest control include in IPM	44	88	6	12
10.	Pheromones mode of action	24	48	26	52
11.	Number of pheromone traps/ha	20	40	30	60
12.	Chemical used in rat control	50	100	0	-
13.	Mean	25.16	50.33	24.83	54.18

Table 5. Knowledge items related to integrated weed management

S. No.	Statement	Known		Unknown	
		N	%	N	%
1.	Smoothing crops to check weed growth	20	40	30	60
2.	Biological agent successfully control the Opuntia dillinii	18	36	32	64
3.	Important methods of control in integrated weed management	40	80	10	20
4.	Meaning of pre emergence application	38	76	12	24
5.	Indicator weed for salinity	32	64	17	36
6.	Tans located herbicides	23	46	27	54
7.	Mean	28.5	57	21.33	43

It is clear from the table 3 that most of the agricultural officers ranging from (24.00 to 96.00) per cent knew the practices like green leaf manure plant, usual close of blue green algae, objective of mixed farming, content of Ca and P in vermi-compost, C.B.

status of legumes stabilization of bunds, bio-fertilizer recommended for pulse crop, quantity of bio-fertilizer, desirable benefit-cost ratio, and inoculation method of bio-fertilizers. Over decades, the extension personnel of the Department of Agriculture have been exposed to

crop production technologies through their periodical training programmes under the T & V system. Hence, there appears to be strong reason for the personnel knowledge in the above subject. Suresh P. (1995) also found that agricultural officers working in Godavari district of Andhra Pradesh perceived less training need in manures and their effective use. Only more than half of the agricultural officers knew the practices like quantity of bio-fertilizer recommended for treatment of seeds, content of calcium and phosphorous in vermicompost, time of application of blue green algae and objective of mixed farming. Almost fifty percent of the agriculture officers under study were lacking in knowledge on these items. Therefore, training programmes should be organized for the agriculture officers on integrated nutrient management in order to update their knowledge.

With regard to integrated pest management table 4 the cent per cent Agriculture Officers knew the meaning of IPM and chemical use to control rats. The highest majority agriculture officers were also having knowledge about parasite use to break pest multiplication. This was followed by 88.00, 60.00, 48.00, 40.00, 148.00, 40.00, 20.00, 18.00, 16.00 and 10.00 per cent agricultural officers were having knowledge about method of pest control including IPM; place of parasite breeding, pheromones mode of action, number of pheromones traps per hectare, load of pest population at which parasite is recommended, popular egg parasite, thuricide used against moth pest, thuricide mode of action popular bactericide, respectively. (52.00 to 90.00) per cent of the AO's had not known the item like method of pest control include in IPM, pheromone mode of action, thuricide mode of action, thuricides used against moth pest, the load of pest population at which pesticide in recommended and popular bactericide. There is a need to stress on pheromone traps that control the pest population by disrupting the mating which is very economical and environmentally safe.

Result furnished in the table 5 reveals that AOs possess varied know ledge on integrated weed management such as important method of integrated weed management (80%), meaning of pre-emergence application (76%), tanslocated herbicide (46%), smoothening crop to check weed growth (40%) and biological agent (36%) were known by 80.00, 76.00, 46.00, 40.00 and 36.00 per cent of the AOs. On the other hand, majority of the AOs, (64%) did not know

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about biological agents to control *opuntia dillinsi*. Though majority of them knew about some of the aspects integrated weed management still some of the aspects their knowledge was poor. In ease of biological agents to of was only 36% percent where as of smoothening up to check weed growth, translocated herbicide the percentage was to the time of 40 and 46%, respectively. Tranlocated herbicide and smooth crops check weed growth and is an important method of weed control. Hence, there should be made know to the AOS.

Table 6. Overall knowledge level of agriculture officers

Knowledge level	N	% age
0 – 15 (Low)	05	10
15 – 30 (Medium)	25	50
30 – 45 (High)	20	40
Total	50	100

A cursory look at table 6 indicated that majority (50.00) of the AOS were having medium level of knowledge while 40.00 per cent and 10.00 per cent had high and low knowledge, respectively. Thus, it is clear from the above findings that overall majority of the AOS had either medium or high level of knowledge about sustainable agriculture. Therefore, in future training programme should be organized to up-to-date their knowledge on sustainability of the technologies.

Table 7. Relationship between socio-psycho variables score and agriculture sustainable practices.

Socio-psycho variables	'r' Value	't' value
Education	0.00737	34.9310
Occupation	0.01088	35.3649
Job experience	0.12529	35.0286
In service training received	-0.13327	34.3689
Information source use	0.27911	36.1742
Perception of work load	-0.06377	36.8892
Job satisfaction	-0.01013	34.6852
Level of Aspiration	0.17069	34.7458

Significant at 5% level of confidence

It is evident from table 7 that most of the variables viz, education, occupation, job experience, information source use, level of aspiration had shown positive correlation with knowledge level of the AOs, whereas in-service training received, perception of work load and job satisfaction had shown negative correlation with knowledge level of the AOs. The 't' value was significant at 5% level of confidence in case of all the

independent variables from the negative correlation of In-service training received with knowledge. It could also be informed during the study that most of AOs did not receive trainings regularly by the State Department of Agriculture where appropriate training facilities and infrastructure was not available to train the field level staff on sustainable agriculture. Hence, there is a need to update the knowledge of AOs by State Deptt. of Agriculture in every district for the sustainability of agriculture in the district in particular and in the country in general.

CONCLUSION

Sustainability is the urgent need of Indian agriculture for production and economic viability. The study revealed that state department of agriculture officers possessed medium level of knowledge on sustainable agriculture. A good percentage of agriculture officers also possessed higher knowledge. Hence, there is a need to update their knowledge regularly to make agriculture sustainable in the state of U.P.

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