

**KNOWLEDGE OF AGRICULTURAL OFFICERS ON SUSTAINABLE
AGRICULTURAL PRACTICES:
A MICRO STUDY IN GUNTUR DISTRICT OF ANDHRA PRADESH**

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Sustainable agriculture is that form of farming which produces sufficient food to meet the needs of the present generation without eroding the ecological assets and the productivity of the life supporting system of future generations (Venkataramani, 1991).

Knowledge is one of the important components of human behaviour. Extension workers are like the nervous, system in the process of rural development. T & V system of extension is based on the philosophy that unless the personnel at different hierarchy are equipped with up-to-date knowledge. They can never be effective change agents. Agricultural officer working in the field extension plays a pivotal role in Transfer of technology. The important position of this crucial change agent in the extension approach makes it necessary to know in all dimensions. It is well known that a professional extension service will not survive in its reality without technically competent, skilled and highly motivated functionaries. Hence, a greater responsibility is on the shoulders of Agricultural Officers (AO's) who are in the field extension. AO's should have through knowledge on sustainable agricultural practices, which preserve and / or enhance the environment. There are many common deficiencies in the knowledge and ability on the part of extension personnel (Hilderband, 1986)

Agricultural Officers perceived that course on sustainable agriculture is very important among the curriculum at undergraduate level in Agricultural Universities (Suresh, 1995) Possession of knowledge is pre-requisite for effective dissemination. Thus, there is a need to know the stock of their existing knowledge and take steps to keep it up-to-date.

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In view of above factors, the present study was undertaken with the following objectives:

- i. To measure the knowledge of Agricultural Officers on sustainable agricultural practices.
- ii. To identify the associated factors of knowledge.

Methodology

The study was conducted in Guntur District of Andhra Pradesh. All the AOs working in the field extension (68) constituted the sample. Twelve independent variables were selected based on review of literature and opinion of judges suitable measures were developed for quantifying the independent variables. Knowledge of AOs on sustainable agricultural practices was measured with the help of a test developed and standardized for the purpose. The test consisted of 42 statements. The minimum and maximum possible score one can get ranged from 0 and 42, respectively.

Results and Discussion

The results of the present study are presented and discussed below.

Table-1
The data pertaining to the knowledge of Agricultural Officers
Knowledge of AO's on Sustainable Agricultural Practices

Sl.No.	Category	Respondents	
		Frequency	Percentage
1.	Low knowledge	13	19.12
2.	Medium knowledge	38	55.88
3.	High knowledge	17	25.00
	Total	68	100.00
Mean : 50.2472		SD = 0.8030	

A close look at Table-1 indicated that majority (55.88%) of the Agricultural Officers were having medium knowledge on sustainable agricultural practices, while 25 per cent and

19.12 per cent had high and low knowledge, respectively.

Response analysis of Knowledge Items

To gain more insight on the knowledge of agricultural officers on sustainable Agricultural practices, an item-wise response analysis was carried out and the Results are furnished separately for 5 identified areas on sustainable agricultural practices from Tables 2 to 6.

It could be analyzed from the Table 2 that the items meaning of soil conservation, five barriers across field slope, dead furrows and wind breaks were known by 64.71, 72.06, 82.35, 89.71 and 91.18 percent of Agricultural Officers, respectively. The State Department of Agriculture, Andhra Pradesh is providing in-service training of soil and water conservation for a duration of thirty days at soil and water conservation Training and Research Centre, Anantapur and the training might have helped the Agricultural officers in acquiring more knowledge. Moreover, the trained persons might have shared their views learned in the training with the other Agricultural Officers while they meet often at ADA office for monthly meeting. These might have constituted for above results.

It is clear from the Table 3 that most of the Agricultural Officers ranging from 67.75 to 91.78 per cent known the practices like methods of inoculating of bio-fertilizers with pulse seed, suitability of legumes to green manuring, plants used for green leaf manuring, desirable cost benefit ratio of cropping systems and the biofertilizers recommended for pulse crop. 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 systems. Hence, there appears to be strong reason for the personnel knowledge in the above subjects. Kumar (1994) also found that Agricultural Officers working in Cuddapah district of Andhra Pradesh perceived less training needs in manures and their effective use. Only little more than half ranging from 52.94 to 58.82 per cent of the Agricultural Officers known the practices like quantity of biofertilizer recommended to treat the pulse seed required per hectare, content of calcium and phosphorus in Vermicompost, time of application of Blue Green Algal and the objective of mixed farming, leading to infer that nearly half of the Agricultural Officers under study were lacking

knowledge in these items. Biofertilizers reduce the cost of production to a greater extent and protects the soils from becoming saline which is the major problem due to excessive chemical fertilizer. These also reduce pollution hazards. Vermicompost helps in both ways by converting the wastes into manures and at the same time keeping the environment clean. Keeping in view the importance of biological entities like biofertilizers and organic manure application to the crop plants. Agricultural officers should bestow their attention to have sufficient knowledge. Therefore, in future training programmes, more inclination should be towards biofertilizers.

It is observed from the Table 4 that in case of Water Management 63.24 to 89.71 per cent of the Agricultural Officers know the practices like the water harvesting methods, soils suitable for broad bed and furrow method of irrigation, soil moisture sensitive stages, stage of crop at which irrigation is scheduled, and efficient method of irrigation. Because of their regular touch with the growing crops of the area. Agricultural officers might have build up sufficient staff about these practices. However, quality of water used for irrigation in terms of Electrical conductivity was not known by the considerable proportion (41.18%) of the Agricultural Officers should concentrate on this component.

With regard to Integrated Pest Management (Table 5) the AOs ranging from 60.29 to 82.35 per cent were having knowledge on the practices namely popular bactericide, various controlling methods involved in IPM practice used to break pest multiplication. Popular egg parasite, chemical used to control rats and load of pest population (ETL) for recommending pesticide spraying Inservice training imparted on IPM in cotton by the scientists of the Acharya N.G.Ranga Agricultural University and the AOs periodical exposure to the items included in the test at their fortnightly training sessions and superior adverse might be possible reason for the above trend. However, it is to note that 55.88 per cent of the AOs did not know the places of parasite breeding stations which were located at the ARS, Ambajipet and Hyderabad 45.00 –50.00 per cent of the AOs had not known the items like comprehensive meaning of IPM, usage of thuricides against moth pest, pheromone traps recommended per hectare and pheromones mode of action. 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.

Results furnished in the Table 6 reveals that intercrops to check weed growth, translocated herbicide and indicate or weed for soil salinity were known by 73.63 to 62.94 per cent of the AOs. On the other hand majority of the AOs did not know about biological agent to control *Opuntia dellinii*, meaning of pre-emergence application and important method of weed control. Hence, these should be made know to the AOs.

Agricultural officers had better knowledge in areas of soil and water Management. But interesting to note that considerable proportion of AOs did not have the clear concept of Integrated Pest Management though they were trained. Regarding Integrated Weed Management majority of items were not known by majority of the Agricultural Officers, as it less importantly considered in designing training programmes.

b) Associated Factors of Knowledge

From the Table-7 it was observed that variables viz., education, parental occupation, rural orientation, job experience insecure training received, perception of workload, job satisfaction, achievement motivation and change proneness, had correlated positively and significantly towards knowledge of Agricultural officers on from regression analysis (R²) that, twelve selected independent variables put together explained the variation in knowledge of Agricultural officers to the extent of 80.20 per cent. The unexplained variation to the extent of 19.80 per cent may be attributed to the variables not included in this study.

IMPLICATIONS OF THE STUDY

Majority of the Agricultural Officers were lacking knowledge on comprehensive meaning of watershed which is the key project in developing drylands. Hence, they may be deputed to MANAGE, Hyderabad and CRIDA, Hyderabad which are giving training on watershed and related activities.

As bio-fertilizers are the way to reduce cost of production and environmental hazards,. Knowledge of Agricultural Officers on this area can be improved by circulation literature, screening video cassettes and arranging visits to ARS, Garikapadu and ARS, Amaravati where bio-fertilizers are manufactured.

Cropping system is another area where agricultural Officers were lacking knowledge,

which needs due recognition by State Department of Agriculture for training of Agricultural Officers.

Vermicompost, now-a-days it has become more popular as it keeps the environment clean by converting the wastes into valuable manure. Hence, they should be exposed to the demonstrations about preparation of bed for vermicomposting and availability of earthworms and their characteristics.

Response analysis showed that majority of the Agricultural Officers did not know the places of parasite breeding stations. Keeping in view the importance of biological agents in IPM, they can be taken to breeding areas located at Ambajipeta and Hyderabad in order to make them acquire an idea of availability of different parameters and their effectiveness.

Weeds are the main competitors with plants for sunlight, moisture and nutrients. As the Agricultural Officers were lacking knowledge in this area with a special reference to biological control. They can be deputed for institutions like AICRP on weed control, Rajendranagar and weed control scheme located in Agricultural College, Bapatla, so as to make them aware on identification of weeds, their control with blending of different methods and biological agents available to control weeds.

The study revealed that education, parental occupation, perception of workload, job satisfaction, achievement motivation and change proneness had significant relationship with knowledge. These variables should be kept in sharp focus by the superiors and higher ups of the State Department of Agriculture for changing the present trend high category.

References

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Table –1
Knowledge of AO's on Sustainable Agricultural Practices

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Table - 2
Response Analysis of Knowledge Items Related to 'Soil and Water Conservation'

Sl. No.	Knowledge Item	Response			
		Known		Unknown	
		Frequency	Percentage	Frequency	Percentage
1.	Formation of dead furrows for soil and water conservation.	61	89.71	7	10.29
2.	Stabilization of bunds.	38	55.88	30	44.12
3.	The field slope at which agronomic measures recommended.	38	55.88	30	44.12
4.	Important cover crops for checking soil erosion.	56	82.35	12	17.65
5.	Suitable live barriers.	49	72.06	19	27.94
6.	Wind breaks.	662	91.18	6	8.82
7.	Meaning of soil conservation	44	64.71	24	35.29
8.	Meaning of watershed.	33	48.53	35	51.47

Table - 3
Response Analysis of Knowledge Items Related to
'Integrated Nutrient Management and Cropping System'

Sl. No.	Knowledge Item	Response			
		Known		Unknown	
		Frequency	Percentage	Frequency	Percentage
1.	C:B status of legumes Stabilization of bunds	52	76.47	16	23.53
2.	Content of Ca and P in Vermicompost	37	54.41	31	45.59
3.	Bio-fertilizer recommended for pulse crops	62	91.18	06	8.82
4.	Quantity of bio-fertilizer per hec.	36	52.94	32	47.06
5.	Method of inoculation of bio-fertilizer.	46	67.65	22	32.35
6.	Usual dose of BGA	39	57.35	29	42.65
7.	Time of application of BGA	37	54.41	31	45.59
8.	Green leaf manuring plants	52	76.47	16	23.53
9.	Desirable cost benefit ratio	57	83.82	11	16.18
10.	Objective of mixed farming	40	58.82	28	41.18

Table - 4
Response Analysis of Knowledge Items Related to
‘Water Management’

Sl. No.	Knowledge Item	Response			
		Known		Unknown	
		Frequency	Percentage	Frequency	Percentage
1.	Quality of irrigation water in terms of Electrical Conductivity	40	58.82	28	41.18
2.	The stage of crop at which irrigation is scheduled in scarce	61	89.71	7	10.29
3.	Soil moisture sensitive stages	60	88.24	8	11.76
4.	Efficient method of irrigation	61	89.71	7	10.29
5.	Suitable of soils for broad bed and furrow method of irrigation	58	85.29	10	14.71
6.	Water harvesting methods is arid regions	43	63.24	25	36.76

Table - 5
Response Analysis of Knowledge Items Related to
'Integrated Pest Management'

Sl. No.	Knowledge Item	Response			
		Known		Unknown	
		Frequency	Percentage	Frequency	Percentage
1.	Thuricides used against moth pests.	35	51.47	33	48.53
2.	Thuricides mode of action	30	44.12	38	55.88
3.	The load of pest population at which pesticide spraying is recommended	56	82.35	12	17.65
4.	Popular bactericide	41	60.29	27	39.71
5.	Popular egg parasite	47	69.12	21	30.88
6.	Place of parasite breeding stations	28	41.18	40	58.52
7.	Meaning of IPM	37	54.41	31	45.59
8.	Practice used to break pest multiplication	46	67.65	22	32.35
9.	Methods of pest control included in IPM	43	63.24	25	36.76
10.	Pheromones mode of action	35	51.47	33	48.53
11.	Number of pheromone traps per hectare	34	50.00	34	50.00
12.	Chemicals used to control rats	47	69.12	21	30.88

Table - 6
Response Analysis of Knowledge Items Related to
'Integrated Weed Management'

Sl. No.	Knowledge Item	Response			
		Known		Unknown	
		Frequency	Percentage	Frequency	Percentage
1.	Smoothing crops to check weed growth	50	73.53	18	26.47
2.	Biological agent successfully controlled the <i>Opuntia dillinii</i>	23	33.82	45	66.18
3.	Important method of control in Integrated Weed Management	33	48.53	35	51.47
4.	Meaning of pre-emergence application	30	44.12	38	55.88
5.	Indicator weed for salinity	36	52.94	32	47.06
6.	Translocated herbicide	39	57.35	29	42.65

Table - 7
Relationship Between Personal, Socio-Psychological Characterists of the Respondents and their knowledge

Sl. No.	Knowledge Item	Correlation Co-efficient Y-Values
1.	Education	0.842**
2.	Parental occupation	0.491**
3.	Rural Orientation	0.375**
4.	Job experience	0.280*
5.	Inservice training received	0.461***
6.	Utilization of information sources	-0.165 NS
7.	Perception of workload	0.597**
8.	Job satisfaction	0.623**
9.	Level of aspiration	0.205 NS
10.	Achievement motivation	0.652**
11.	Chane proneness	0.663**
12.	Concern for environment	0.216 NS

NS - NonSignificant ‘F’ - Value = 18.52

** - Significant at 0.01 level of probability R²=0.802

* - Significant at 0.05 level of probability