



## **Extent Of Knowledge And Its Influence Various Variables On Micro Irrigation System (MIS) Among APMIP Beneficiaries**

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### **ABSTRACT**

*Water is the precious natural resource meeting the multifaceted demands of the people. To increase the efficiency of water farmers have to adopt precision irrigation methods. The present study was designed to assess the knowledge levels of APMIP beneficiaries and the association between profile characteristics and knowledge levels of APMIP beneficiaries. The findings indicated that majority of the farmers had APMIP beneficiaries had medium level of knowledge followed by High and low levels of knowledge on Micro Irrigation Systems.*

**Key words:** APMIP, Beneficiaries, Knowledge level, Micro Irrigation System (MIS), Profile characteristics and Relationship

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### **INTRODUCTION**

Water is the precious natural resource meeting the multifaceted demands of the people. Due to intensive utilization of water in agriculture it became the scarce resource and forcing the farmers towards adoption of efficient utilization measures to conserve the water.

Sustainable development and efficient management of water is an increasingly complex challenge in India. Increasing population, growing urbanization, and rapid industrialization combined with the need for raising agricultural production generates competing claims for water. There is a growing perception of a sense of an impending water crisis in the country.

India with 2.4% of the world's total area has 16% of the world's population: but has only 4% of the total available fresh water. This clearly indicates the need for water resource development, conservation, and optimum use. Fortunately, at a macro level India is not short of water. The government of Andhra Pradesh has launched the Andhra Pradesh Micro Irrigation Project in 2003 to promote micro irrigation in large scale for sustainable development of agriculture. State government of Andhra Pradesh initiated the Andhra Pradesh Micro Irrigation Project during November 2003 to enhance the water use efficiency in agriculture by providing technical and financial support to the farming community.

With this back drop, the present investigation was under taken in chittoor district of Andhra Pradesh with the following specific objectives.

- i) Knowledge levels of APMIP beneficiaries on micro irrigation system
- ii) Association between profile characteristics and knowledge levels of APMIP beneficiaries

### **MATERIAL AND METHODS**

The study was conducted with an ex post facto research design to assess profile characteristics of APMIP beneficiaries in Chittoor district of Andhra Pradesh which was purposively selected, as APMIP was the first special purpose vehicle on the micro irrigation in the country. Chittoor district was selected purposively. Chittoor district consists of 66 mandals out of which 3 mandals were selected based on highest area and beneficiaries were under the APMIP. From the each of selected Mandal eight villages were selected based on simple random sampling procedure. Thus, totally 24 villages were selected for the study. A total sample of 120 APMIP beneficiaries were selected through the simple random sampling procedure. After review of literature and consultation with experts as set of 16 personal, psychological and socio-economic variables were selected. The data was collected through a structured comprehensive

interview schedule and analysed using mean and standard deviation for drawing meaningful interpretations.

A total of 20 objective questions were prepared in the form of fill in the blanks and multiple choice type of questions to assess the real knowledge of the APMIP beneficiary pertaining to micro irrigation system. The correct response to each test item was given a score of '1' and incorrect response a score of '0'. The knowledge score of the beneficiaries was the summation of these scores. The expected maximum and minimum scores were 20 and 0. Based on the total scores obtained by the respondents were grouped into three categories based on mean and standard deviation. The data were subjected to statistical tests such as frequencies, coefficient corrections multiple linear regression for draw the conclusions.

## RESULTS AND DISCUSSION:

Table 1 depict that majority (59.17%) of the APMIP beneficiaries had medium level of knowledge on micro irrigation system followed by high 25.83 per cent and low 15 per cent levels of knowledge on MIS respectively

**Table 1. Distribution of APMIP beneficiaries according to their level of knowledge on MIS (n=120)**

S. No.	Category	Frequency	Percentage
1.	Low	18	15.00
2.	Medium	71	59.17
3.	High	31	25.83
	<b>Total</b>	<b>120</b>	<b>100.00</b>
Mean=14.77; SD=2.96			

This might be due to the fact that majority of the beneficiaries were possessing education, extension contact, mass media exposure, innovativeness, training undergone and social participation all at medium level. Hence majority of the respondents categorized under medium knowledge level. The results derived support from the findings were Katkar and Ahire (2006) Jitarwal and Sharam (2007) and Kolgane *et al.* (2009).

## Correlation analysis of selected profile characteristics and Knowledge levels of the APMIP beneficiaries

**Table 2 Correlation analysis of selected profile characteristics and Knowledge levels of the APMIP beneficiaries (n=120)**

S. No.	Independent Variable	Correlation co-efficient 'r' value
X <sub>1</sub>	Age	-0.4095*
X <sub>2</sub>	Education	0.6621**
X <sub>3</sub>	Farm size	0.1055 <sup>NS</sup>
X <sub>4</sub>	Farming experience	-0.5428**
X <sub>5</sub>	Farming experience under MIS	-0.0257**
X <sub>6</sub>	Extension contact	0.6632**
X <sub>7</sub>	Mass media exposure	0.7235**
X <sub>8</sub>	Innovativeness	0.6793**
X <sub>9</sub>	Training undergone	0.5684**
X <sub>10</sub>	Economic orientation	0.6898**
X <sub>11</sub>	Achievement motivation	0.3345**
X <sub>12</sub>	Social participation	0.5111**
X <sub>13</sub>	Scientific orientation	0.5738**
X <sub>14</sub>	Risk orientation	0.5896**

\*: Significant at 0.05 level      \*\*: Significant at 0.01 level      NS: Non-significant

### Age

From the Table 2 it is clearly indicate that the age of the farmers had negative but significant relationship with the knowledge levels of APMIP beneficiaries. As age of the farmer's progresses they lose their interest to achieve something and their rational thinking and decision making ability also deteriorates, hence this trend was noticed. Similar finding was reported by Kiruthika (2014).

### Education

The data presented in Table 2 reveals that the education of the farmers had positive and significant relationship with the knowledge levels of APMIP beneficiaries. Education of the beneficiary farmers

increased there was a positive increase in the knowledge level of the beneficiary farmer on APMIP. Similar finding was reported by Radhika (2007).

#### **Farm size**

It can be seen from the data presented in Table 2 that there was positive but non-significant relationship between farm size with the knowledge level of APMIP beneficiaries. The probable reason might be that government providing the different subsidy scheme for the farmers to adopt the micro irrigation system, the scheme based on social category and high priority for small and medium farmers. Hence this trend was observed.

#### **Farming experience**

Farming experience showed a negative but highly significant relationship with the knowledge level of APMIP beneficiaries. The possible reason for non-significant relationship that as farming experience increases, the farmer develop a feeling that he knows everything and reluctant to acquire latest technology. Some of the old aged farmers did not had enough confidence in taking decisions related to farming as they just followed the peer farmers. Hence this trend was noticed.

#### **Farming experience under MIS**

The data presented in Table 2 clearly indicate that the farming experience under MIS had negative but highly significant relationship with the knowledge levels of APMIP beneficiaries. The possible reason for this relationship as farming experience increases, the farmer develop a feeling that he knows everything and reluctant to acquire latest technology. Some of the old aged farmers didn't had enough confidence in taking decisions related to farming as they just followed the peer farmers. Hence this trend was noticed.

#### **Extension contact**

The data presented in Table 2 clearly mention that there was positive and significant relationship between extension contact with the knowledge levels of APMIP beneficiaries. Extension sources were the best and reliable sources of information for the beneficiary farmers. Hence, beneficiary farmers who gave got more contacts with extension agencies will have more knowledge about recommended practices of APMIP.

#### **Mass media exposure**

The data presented in Table 2 clearly mention that there was positive and significant relationship between mass media exposure with the knowledge levels of APMIP beneficiaries. The probable reason may be due to increase in the telecast of agricultural programs through different channels and number of newspapers publishing a full column on Micro Irrigation Systems, implementation, maintenance and chemical treatment measures regularly. APMIP beneficiaries with good mass media exposure are in a position to pick up right technologies at right time and implement them, so better management of APMIP beneficiaries can be seen. The finding was in conformity with the findings of Shashidhara *et al.* (2007).

#### **Innovativeness**

It can be seen from the data presented in Table 2 that there was positive and significant relationship between innovativeness with the knowledge levels of APMIP beneficiaries. The probable reason might be that innovativeness was associated with the individual's earliness in use of new practices. An innovative farmer always reaped windfall profits from new technologies. APMIP beneficiaries with this trait had better impact.

#### **Training undergone**

Training undergone had positive and highly significant relationship with the knowledge levels of APMIP beneficiaries. Training has been considered as the most important tool for developing knowledge, attitude, technical skills, improving farmers work efficiency and profit of the farm. This was in line with the findings of Soumya (2016).

#### **Economic orientation**

The data presented in Table 2 clearly mention that there was a positive significant relationship between economic orientation with the knowledge levels of APMIP beneficiaries. This is due to the fact that every farmer wants to maximize his profit. It is worth to mention that the economic motivation is a factor responsible for improving the knowledge level on new innovation. Therefore, improving the knowledge level might be responsible for the adoption of MIS in order to get higher economic returns. The present finding were supported with the findings of Kumar (2012)

#### **Achievement motivation**

Achievement motivation had positive and highly significant relationship with the knowledge levels of APMIP beneficiaries. The probable reason for this trend might be that Majority of the respondents had achievement motivation to some extent as they were living on subsistence economy they had to get some income which led to increased impact of APMIP in recent times. Individual with high achievement motivation would be determined to reach his goal with concentrated efforts. In this process, farmer

knows the importance of recommended practices and this lead to efficient impact of APMIP. This finding was in line with the findings of Vinayakumar *et al.* (2013).

**Social participation** The data presented in Table 2 clearly mention that there was positive and significant relationship between social participation with the knowledge levels of APMIP beneficiaries. The beneficiary farmers with more social participation generally have more exposure to different information sources during their interaction, which helped them to gain more knowledge.

#### Scientific orientation

The data presented in Table 2 clearly mention that there was positive and significant relationship between social participation with the knowledge levels of APMIP beneficiaries. The probable reason might be that farmers with high scientific orientation will prefer to cultivate the crops as per the production recommendations given by the scientists and extension personnel. This will give ample scope for the APMIP beneficiaries to think logically and scientifically. APMIP beneficiaries having good scientific orientation will naturally prefer to know advanced technologies in agriculture. Therefore, they are interested in knowing about latest agricultural practices. In this process, they might have acquired more knowledge. Hence, the above trend was noticed and there was a positive and significant relationship between scientific orientation and impact of APMIP of the beneficiaries. The result was in line with the findings of Joshi (2004).

#### Risk orientation

The data presented in Table 2 clearly mention that there was positive and significant relationship between social participation with the knowledge levels of APMIP beneficiaries. The probable reason might be that APMIP beneficiaries with high risk orientation acquire more knowledge and would give better farm returns.

### II. Combined effect of all Independent Variables on knowledge levels of APMIP beneficiaries

From the table 3. It was evident that all the selected 14 independent variables put together explained about 78.28 per cent variation in knowledge levels of APMIP beneficiaries, as indicated by 'R<sup>2</sup>' value. Thus, it could be concluded that the variables selected, explained the variation to a large extent over the knowledge levels of APMIP beneficiaries. In other words, the variables selected for the study were relevant to the problem selected.

**Table 3. Multiple Linear regression analysis of the selected independent variables with the knowledge levels of APMIP (n=120)**

S. No.	Variable	Std. error	'b' values	't' values	'P values'
X <sub>1</sub>	Age	0.025	0.022	-1.768*	0.373
X <sub>2</sub>	Education	0.194	0.193	-1.909*	0.322
X <sub>3</sub>	Farm size	0.024	-0.013	3.954**	0.567
X <sub>4</sub>	Farming experience	0.021	-0.046	1.668 <sup>NS</sup>	0.032
X <sub>5</sub>	Farming experience MIS	0.047	0.035	-1.016 <sup>NS</sup>	0.458
X <sub>6</sub>	Extension contact	0.062	0.067	2.467**	0.283
X <sub>7</sub>	Mass media exposure	0.092	0.319	0.449 <sup>NS</sup>	0.008
X <sub>8</sub>	Innovativeness	0.058	0.145	0.733 <sup>NS</sup>	0.013
X <sub>9</sub>	Training undergone	0.066	0.216	-0.060 <sup>NS</sup>	0.015
X <sub>10</sub>	Economic orientation	0.100	0.221	0.974 <sup>NS</sup>	0.030
X <sub>11</sub>	Achievement motivation	0.083	0.019	1.075 <sup>NS</sup>	0.812
X <sub>12</sub>	Social participation	0.051	0.019	-0.575 <sup>NS</sup>	0.703
X <sub>13</sub>	Scientific orientation	0.096	-0.041	2.726**	0.667
X <sub>14</sub>	Risk orientation	0.109	0.200	3.333**	0.009

R<sup>2</sup> = 0.7828

\* : Significant at 5% level

\*\* : Significant at 1% level

NS : Non-significant

When partial regression coefficients were tested it was observed that farm size, extension contact, scientific orientation and risk orientation were found positively significant, found as indicated from their significant values. It indicated that farm size, extension contact, scientific orientation and risk orientation had positively and significantly contributed for most of the variation in the knowledge levels of APMIP beneficiaries.

## CONCLUSION

The study clearly indicated that the APMIP beneficiaries had medium level of knowledge on micro irrigation systems. And also the results showed that the ten independent variables viz., education, extension contact, mass media exposure, innovativeness, training undergone, economic orientation, achievement motivation, social participation, scientific orientation, risk orientation, had positive and highly significant relationship with the knowledge levels of APMIP. The two variables viz., age farming experience and farming experience under MIS had negative but significant relationship with the knowledge levels of APMIP beneficiaries. Farm size had positive but non-significant relationship with the knowledge levels of APMIP beneficiaries. All the selected fourteen independent variables put together explained about 78.28 per cent variation in the knowledge levels of APMIP beneficiaries observed. Farm size, extension contact, scientific orientation and risk orientation had positively and significantly contributed for most of the variation in the knowledge levels of APMIP beneficiaries. Hence there is immediate need to promote MIS, focusing more on imparting the need and importance MIS during the training programmes, demonstrations, showing case studies, capacity building programmes and in farming planning interventions in agriculture.

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