

Relationship between Profile Characteristics and Knowledge Level of State Department of Agriculture and Farmers Practices on Nutrient Management in Vegetables Cultivation

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ABSTRACT

The research study was carried out to know relationship between profile characteristics and knowledge level of state department of agricultural (SDA) and farmers practice (FP) respondents on nutrient management in vegetables in Kullu district of Himachal Pradesh. The data were collected from 200 respondents randomly representing 20 villages of 2 community development blocks during the year 2014-15 and 2015-16 using structured interview schedule. The findings revealed that the independent variables viz. farm size, farming experience, irrigation water supply, extension contact, capacity enhancement activities, exhibited positive and significant relationship at five per cent level of significance whereas education, information seeking behaviour exhibited positive and significant relationship at one per cent level of significance. Age, annual income, machinery ownership, profit oriented behaviour exhibited non-significant relationship with knowledge level of SDA respondents. With respect to FP respondents variables like education, annual income, farm size, extension contact and capacity enhancement activities exhibited positive and significant relationship at five per cent level of significance whereas age, farming experience, irrigation water supply, information seeking behaviour, machinery ownership, profit oriented behaviour exhibited non-significant relationship with knowledge level of FP respondents.

Key words : Profile characteristics; Knowledge level; Nutrient; Management;

The vegetables are the most important to the human diet for better health, because they possess high nutritive value and are rich source of carbohydrates, proteins, vitamins and minerals. The criteria of selection of research area in Kullu Valley of Himachal Pradesh were due to its suitable climate conditions for most of the temperate vegetables and their breeding as well. The summer being mild was suitable for many sub-tropical important vegetables also. Still in this area the vegetable production is low, because the rate of adoption of improved vegetable production technologies is less adopted by the farmers at their own field (Suman, 2008).

In the present days, the different nutrient management packages followed in vegetable crops include Site Specific Nutrient Management (SSNM), Recommendations from State Agricultural Universities (SAUs), State Department of Agriculture, Research

Stations as well as farmers are adopting different doses of fertilizers (FP) based on their experience and other different socio economic reasons.

There is no single recommendation for vegetable fertilization which fits in all situations. Fertilizer application vary considerably, depending on crop requirements, the availability of fertilizers, the financial resources of the farmer, and most importantly, the ability of the farmer to follow application schedules (some of which can be quite complicated). Test and field experiences under SDA and SAUs have shown that the application of 125 kg/ha of nitrogen, 40 kg/ha of phosphorus, and 125 kg/ha of potassium give optimum results under most local conditions of Himachal Pradesh state (Suman, 2008).

Many farmers may either be unwilling or unable to purchase this amount of fertilizers; they end up application

of fertilizers at much lower rate. Decreasing the amount of fertilizer application results in more modest yields, but keep in mind that any amount of fertilizer, no matter how small, will help. If a farmer decides to apply fertilizer but can afford only three bags of N-P-K (15-15-15) kg/ha, even this relatively small amount of fertilizer will affect favorable results (Suman, 2008). Some of the farmers appear to be skilled in adopting fertilizer application practices. Instead of following the recommended practice, they slightly reduce the amount of NPK or mix NPK and urea fertilizers. The practices are guided by economic incentives; to reduce labor inputs (i.e. to reduce labour costs in the case of mixing fertilizers) and the need to reduce cash outlays (Suman, 2008). Therefore, the current practice needs to be guided by identifying threshold level of minimum rate of fertilizer.

Keeping these things in view, the present study was undertaken to find out relationship between profile characteristics and knowledge level of state department of agricultural (SDA) and farmers practice (FP) respondents on nutrient management in vegetables.

METHODOLOGY

The present study was carried out in Kullu district of Himachal Pradesh during 2014-15 and 2015-16. Ex post facto research design was adopted and random sampling technique was followed for the study. From the Kullu district, two community development blocks were purposively selected and from each block ten villages were selected randomly based on criteria of large extent of vegetable cultivation. From each village five SDA respondents and five FP respondents were selected randomly, making a sample size of 200 respondents.

In the light of the objectives set for the study, the variables viz., knowledge of nutrient management in vegetable crop was the main item of investigation. A knowledge schedule was developed to measure the knowledge level of the respondents about the nutrient management in vegetable crop. The statements in knowledge schedule were prepared by discussing with experts from different SMSs (Subject Matter Specialists). The independent variables like Age, Education, Annual income, Farm size, Farming experience, Irrigation water supply, Information seeking behaviour, Extension contact, Machinery ownership, Capacity enhancement activities and Profit oriented behaviour were the main items of investigation.

A pre tested interview schedule was used to collect the data through personal interview method. The statistical tool used is correlation coefficient.

RESULTS AND DISCUSSION

The results of the investigation and corresponding discussion has been presented as follows

Table 1. Relationship between independent variables with knowledge level of SDA and FP respondents (N=200)

Independent variables	SDA (n=100)	FP (n=100)
Age	-0.032 ^{NS}	-0.078 ^{NS}
Education	0.451 ^{**}	0.278 [*]
Annual income	0.012 ^{NS}	0.223 [*]
Farm size	0.223 [*]	0.212 [*]
Farming experience	0.275 [*]	0.152 ^{NS}
Irrigation water supply	0.261 [*]	0.009 ^{NS}
Information seeking behaviour	0.431 ^{**}	0.005 ^{NS}
Extension contact	0.341 [*]	0.251 [*]
Machinery ownership	0.093 ^{NS}	0.095 ^{NS}
Capacity enhancement activities	0.254 [*]	0.282 [*]
Profit oriented behaviour	0.042 ^{NS}	0.035 ^{NS}

r = correlation coefficient, NS = Non significant

*= Significant at 5%, **= Significant at 1%

Age with knowledge : Age was found to be negatively and non-significantly related with knowledge level of both SDA and FP respondents. As age increases, knowledge level decreases because elderly people was less educated and were low in recalling abilities, whereas middle aged were more innovative and gain more knowledge. It means that age oldness of the farmers keep them away from getting updated knowledge about nutrient management in vegetable crop production. This finding is in agreement with the results of Samuel (1993) and Sarma et al. (2011) that the old age farmers were not ready to learn new things.

Education with knowledge : The association between education and knowledge level of SDA and FP respondents was found to be significant and positive. It is known fact that formal education widens the horizons of an individual. In addition, the possible reason for significant association might be that literate people are more receptive and always in search for new information and technologies which help them to improve their socio economic conditions. Further the understanding of the information learnt from the different sources was enhanced through education. This finding is on par with

the findings of *Dubey and Swarnkar (1993)*, *Khan (1999)* and *Suleman et al. (2011)* that the learning is enhance the knowledge.

Annual income with knowledge : A positive and significant relationship was noticed between the annual income and the knowledge level of the FP respondents. As the income level of the farmer's increases, the quantity of fertilizer utilized also increases. When farmers have enough funds at their disposal, there might be the possibility that they purchase more of the fertilizers and hence it could be increase in agricultural productivity. Also high income level obtained from the farming boost their morale to search for more information relevant to their farming in order to increase his income. This finding is in accordance with result of *Adolwa et al. (2006)* that the farmers have high income is ready to spent money as required.

Farm size with knowledge : Farm size was found to be positively correlated with knowledge levels of both SDA and FP respondents. This inferred that farmers with different farm sizes had different knowledge levels regarding recommended nutrient management practices. The increased farm size of a farmer acts as a driving force to search for new information on fertilizers, manures etc for application in the field. As the farm size increases farmer tunes his mind to cash from farm size by growing some commercial crops, for which he searches for new farming methods, commercial varieties etc. hence a significant relationship had observed between farm size and knowledge levels of SDA and FP respondents on nutrient management in vegetable production. This finding is in accordance with results of *Borkar et al. (2000)* and *Prasad et al. (2007)* that the significant relationship between farm size and knowledge on nutrient management.

Farming experience with knowledge : A positive and significant relationship was noticed between the farming experience and the knowledge level of SDA respondents. Farming experience possessed by the farmer is one of the prerequisites to take up agriculture as a profession. The farming experience of a farmer will help him in identifying the upcoming problems in farming and in also search for proper solutions from different sources to encounter such problems, and farming experience also helpful in generating new ideas / concepts in farming. This might be the reason for a positive and significant relationship with knowledge

levels of SDA respondents. This finding is in accordance with the results of *Prasad et al. (2007)* that the significant relationship between farming experience and knowledge.

Irrigation water supply with knowledge: The irrigation source had the association with knowledge of farmers and also significantly influenced the decision on crop and water management. The irrigation source of farmers had significantly influenced the decision not only on land preparation but also on the different nutrients to be applied, for which irrigation water is needed. The irrigation source of farmers will significantly influence the decision on selection of varieties with different duration, scheduling of planting/sowing and irrigation. This finding is in accordance with the results of *Hugar (2014)*.

Information seeking behaviour with knowledge: Information seeking behaviour is very important and had direct impact on the knowledge levels of the SDA respondents. The increased information seeking behaviour drives the farmer for the search of new information on nutrient management in vegetables and also for application in the field. Now a days the KVKs of SAUs offering farm advisory services in which the scientists visit farmers fields weekly in collaboration with Department of Agriculture and assess field problems and gives suitable remedial measures, which are the meeting points of SDA respondents with DOA and KVK scientists to get a valuable information from scientists. SDAs also are utilizing all mass media channels like Electronic Media (T.V & Radio) print media, to disseminate latest agricultural technologies to the farmers. The various T.V. programs, crop CDs, crop seminars, radio programs, print media, kisan call centre and expert nodal center acts an information sources for the SDA respondents which will enhances their knowledge levels. Therefore the information seeking behaviour found positively and significantly related with knowledge levels of SDA respondents on nutrient management in vegetable cultivation. This result is in agreement with the results generated by *Sligo et al. (2005)* and *Jean-Christophe et al. (2007)*.

Extension contact with knowledge : Extension contact exhibited positive and significant relationship with knowledge of the both SDA and FP respondents. The positive and significant relation between extension contact and knowledge level of farmers is quite evident due to the fact that more contacts by the farmers with

the extension personnel provide them an opportunity to know and discuss regarding modern nutrient management practices which in turn enriches their knowledge. Greater contacts with extension personnel might have motivated the farmers in various ways and they might have gained more knowledge due to the wider exposure, contact and interaction with source of technical information that is extension personnel. This finding is in accordance with the result of *Gholamreza et al. (2010)*.

Machinery ownership with knowledge : Machinery ownership was non-significantly related to the knowledge level of the respondents. As discussed earlier that machinery ownership depends upon individual ability to operate. This is influenced by financial position or economic conditions.

Capacity enhancement activities with knowledge : Capacity enhancement activities exhibited positive and significant relationship with knowledge level of both SDA and FP respondents. Capacity enhancement activities attended by the farmers sharpen the hidden skills and act as a medium to imbibe any new knowledge or skill in a given profession. Now a day, the DOA staff and SAUs formulating many programs to reach the farmers and moreover KVKs of SAUs is offering many types of training programs both on campus and off campus to upgrade the skills of respondents. SDA of the district also organizing Kisan Melas in coordination with line departments and also extending the scientific expertise to the line departments in the conduct of training programmes to the farmers. So, the respondents might have got a scope for their capacity enhancement. Hence, the variable capacity enhancement was positively and significantly related to the knowledge level of SDA and FP respondents. This finding is on par with the findings of *Erin et al. (2004)*.

Profit oriented behaviour with knowledge : Profit oriented behaviour was non-significantly related to the knowledge level of the both SDA and FP respondents. The knowledge level of the respondents might be due to their past experience and through use of different mass media or also through interaction between the respondents and the localities in the area which might have led to the Non- significant relationship between profit orientation and knowledge level of the respondents.

Correlation between Knowledge and Adoption level

of SDA and FP respondents : It is revealed in Table 2 that, there was positive and significant relationship at one per cent significant level between knowledge and adoption level of SDA and FP respondents. This implies that as knowledge of individual increases regarding any technology or innovation they tend to adopt the practice to the full extent regarded that it is suitable to his field conditions. The positive relationship could be attributed to the factors like education, information seeking behaviour, extension contact and capacity enhancement activities which directly or indirectly influence the thinking behaviour of an individual to acquire recent information regarding practice or innovation and in turn influence his adoption decision process.

Table 2. Correlation between Knowledge and Adoption level of SDA and FP respondents

Group	"r"
SDA Respondents	0.402**
FP Respondents	0.421**

r = Correlation coefficient, ** = Significant at 1%

CONCLUSION

Independent variables viz. farm size, farming experience, irrigation water supply, extension contact, capacity enhancement activities, exhibited positive and significant relationship at five per cent level of significance whereas education, information seeking behaviour exhibited positive and significant relationship at one per cent level of significance. Age, annual income, machinery ownership, profit oriented behaviour exhibited non-significant relationship with knowledge level of SDA respondents. With respect to FP respondents variables like education, annual income, farm size, extension contact and capacity enhancement activities exhibited positive and significant relationship at five per cent level of significance whereas age, farming experience, irrigation water supply, information seeking behaviour, machinery ownership, profit oriented behaviour exhibited non-significant relationship with knowledge level of FP respondents.

There is strongly recommended that the relationship between farmers and State level officers will be strong for dissemination of available new technologies at farmers field as and when required. Training of the farmers is must regularly and field visit of the staff engaged in extension must be regularizing for adoption of new technologies regarding vegetable production.

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