

RESEARCH ARTICLE

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Dealer perception on application and balance use of the different inorganic fertilizer on crop field with respect to their socio-economic variable: A study in Cooch Behar district

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ABSTRACT : Inorganic fertilizer contain essential element of plant nutrients. Inorganic fertilizer is environmentally not sustainable and price of this fertilizer continuously increasing. Among the different fertilizer some of the fertilizer may be highly applied in crops field by the farmers. Farmers mainly place their demand to the fertilizer dealer. Fertilizer dealer may sale the fertilizer on their own perspective. So application of the inorganic fertilizer in an area can be analysed if we analysis the socio-economic condition of fertilizer dealer on that particular area. On the basis of above viewpoint Cooch Behar Krishi Vigyan Kendra organized one day awareness programme of fertilizer dealer of Cooch Behar district in eastern zone of India to balance use of inorganic fertilizer and a study was conducted on balance use of inorganic fertilizer with respect some socio-economic variable of fertilizer dealer. The study was conducted during February, 2016. The research design was followed in the study was survey research method. The respondents for this study included from the Cooch Behar district. The entire trainees available at the time of awareness programme were considered as respondents. Semi-structure interview schedule were used for collection of data. The sample size for the study was 50. The dependent variable of this study was balance use of inorganic fertilizer and independent variables were age, occupation, education, land holding, religion, family member and number of year associated with their occupation. The descriptive statistics like frequency, percentage and other statistical tools were used for the investigation.

KEY WORDS : Inorganic, Awareness, Sustainable, Socio-economic, Trainees, Fertilizer

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INTRODUCTION

Inorganic fertilizer contains essential amounts of plants nutrients and it's environmentally not sustainable. Different private organizations were continuously promoting inorganic fertilizer among the farmers.

Subbarao (1985) argued that there were differences in the determinants of Fertilizer off- take in low, medium and high productivity districts in the region. In the low productivity districts, fertilizer off-take was essentially demand determined, being explained almost entirely and directly by quantity of irrigation and soil rating index. In the medium and high productivity districts, fertilizer consumption was primarily influenced by supply side factors, *viz.*, access to fertilizer retail outlets, credit institutions, rural road network and related. The study indicated that in both low and high productivity districts, the physical and institutional environment of the district played a dominant role in conditioning the extent of fertilizer use. Uma *et al.* (1990) used adjustment model a version of dynamic model. This approach captured some of the dynamic elements in fertilizer demand better than simple static models without merely resorting to time trends. The results indicated that an increase in fertilizer demand to raise productivity of land would require a fall in relative price. Though the farmers stand to gain directly from the provision of subsidies, the economy as a whole suffered in the long run. Hence, they suggested that education was to be imparted to farmers about the balanced use of fertilizers and use of micronutrients wherever necessary. John and George (1991) conducted a study on factors influencing fertilizer application for sustainable agriculture in west coast plains and the hilly regions of India. They found that relatively high cost of fertilizers, low benefit cost ratio and lack of awareness of recommended dose of fertilizer for specific crops were the reasons behind the low use of fertilizers. According to Morris *et al.* (2007), even if farmers believe that fertilizer is profitable, they may be unable to purchase it if lack cash and/or cannot obtain credit. In agricultural households, the main sources of cash include earnings from salary/wage employment, sell of livestock, and trade. Besides, farm-household size and composition –which has close links with labour supply as well as the income status of the household head, has both positive and negative implications on adoption of inputs. In case of labour intensive inputs such as production and use of organic fertilizer, availability of labour with minimum knowledge can encourage its use even in poor households. On the other hand, if large households are disproportionately poor, then lower use of relatively expensive inputs such inorganic fertilizer is expected in households with large families. As such, the effect of

family size and composition on agricultural technology adoption is not clear in adoption literature as both positive and negative relationships have been reported (Oluoch-Kosura *et al.*, 2002 and Adler *et al.*, 2003) reported that if the knowledge required for the innovation's use can be codified and transferred from one context to another, it will be adopted more easily. Plsek (2003) concluded from his study that perceived complexity can be reduced by practical experience and demonstration. It has been found from studies that if the innovation can be broken down into more manageable parts and adopted incrementally, it will be more easily adopted. Interventions to reduce the number and extent of such response barriers improve the chances of successful adoption (Plsek, 2003 and Rogers, 1995). But there also some socio-economic factor raising the application of the inorganic fertilizer on crop field of Cooch Behar district. It may due to low awareness on organic fertilizer, high dependent on inorganic fertilizer or the other factor. On the basis of above problem a study was conducted on “balance use of inorganic fertilizer with respects some socio-economic variable of fertilizer dealer”. The respondents were selected from Cooch Behar district, West Bengal. Fertilizer dealer were selected as respondent because farmers contact were more with them than others. Data were collected at the time of awareness programme of fertilizer dealer in Eastern India by Cooch Behar Krishi Vigyan Kendra during February, 2016. The purpose of this study is to identify the balance use of inorganic fertilizer and its distribution among the different independent variable selected for the study.

EXPERIMENTAL METHODS

The study was conducted on the respondents of Cooch Behar district, West Bengal, who were participated awareness programme on balance use of inorganic fertilizer by Cooch Behar Krishi Vigyan Kendra during February, 2016. A pre-tested semi-structure interview schedule was used for collection of data. Survey research method was used at the time of investigation. The entire trainees available at time of awareness programme were considered as respondent. The sample size was 50. Purposive sampling method was used for selection of sample. The respondents were selected from Cooch Behar district. The variables were selected based on recommendation of the scientist of

Uttar Banga Krishi Viswavidyalaya, Cooch Behar, West Bengal. The dependent variable of this study was balance use of inorganic fertilizer and independent variables were age, occupation, education, land holding, religion, family member and number of year associated with their occupation. The descriptive statistics like frequency, percentage, range and other statistical tools were used for the investigation.

EXPERIMENTAL RESULTS AND ANALYSIS

The results obtained from the present investigation are presented in Table 1 to 3.

It was observed from the study that the majority percentage of the respondent educational level at the time of survey were high school pass (60%) pass followed by graduate and above (40%). It was revealed from the study that educated respondents were doing fertilizer business. They can take more initiative to educate the farmer for balance use of inorganic fertilizer (Uma *et al.*, 1990). It was found from the study that the great percentage of the respondent major occupation were business (74%) followed by business and farming (26%). It was expose from the result that majority of the respondent occupation were only business. It can be say from the result that the respondents were more involve on inorganic fertilizer business. It was found from the investigation that majority of the respondents (40%) land holding size were more than 10 acre followed by 5 to 10 acre (32%). It was shown from the result majority of the respondent land holding size were large followed medium

and small. It can be say from the result that large land holding size dealer can motivate farmer about balance use of inorganic fertilizer by demonstration method (Pisek, 2003). It was found from the survey that majority of the respondents age range was 30 to 50 years (56%) followed by Less than 30 years (24%). It was expose from the result that majority of the respondent were middle age group. It can be revealed from the study that middle age group of respondents were more involve in fertilizer business. It was shown from the investigation that majority of the respondents religion were hindu (68%) followed by muslim (32%). It was revealed from the result that majority of hindu respondent were occupying fertilizer business. So policy may be taken by government or private organization which is not harmful on religion. It was found from the study that the great percentage of the respondent family member size were less than 5 (76%) followed by more than 5 (24%). It was expose from the study that majority of the respondent family size were small. It can be say from the study that respondent belong in small family were get more time to motivate the farmer. It was exposed from the investigation that majority of the respondents associated with their major occupation were 6 to 10 years (40%) followed by more than 20 years (28%). It was clear from the result from the result that majority of respondent were great experienced in their occupation. So this experienced respondent can easily motivate the farmer to balance use inorganic fertilizer. It was shown after investigation that dealer perception on application of inorganic fertilizer on crop field were high in case of urea (80%) and murat of potash (80%) followed by NPK 10:26:26 (78%)

Table 1 : Variables and their measurement

Variable	Measurement
Dependent variable	
Demand	Schedule developed for the study
Independent variable	
Age	Chronological age of the respondents in completed years
Family member	Schedule developed for the study
Education level	Procedure used by Sivamurthy (1994)
Income	Schedule developed for the study
Land holding	Schedule developed for the study
Religion	Schedule developed for the study
Numbers of year associated with their occupation	Schedule developed for the study

Table 2 : Classification of the respondents with different independent variable			(n= 50)	
Sr No.	Category	Frequency	Percentage	
Educational level				
1.	Illiterate	-	-	
2.	Can read only	-	-	
3.	Can read and write only	-	-	
4.	Primary school	-	-	
5.	Middle school	-	-	
6.	High school	30	60	
7.	Pre-university			
8.	Graduate and above	20	40	
Occupation				
1.	Business	37	74	
2.	Business and farming	13	26	
Land holding (acre)				
1.	Less than 2	4	8	
2.	2-5	10	20	
3.	5-10	16	32	
4.	More 10	20	40	
Age				
1.	Less than 30 years	12	24	
2.	30 to 50 years	28	56	
3.	More than 50 years	10	20	
Religion				
1.	Hindu	34	68	
2.	Muslim	16	32	
3.	Others	-	-	
Family member				
1.	Less than 5	38	76	
2.	More than 5	12	24	
Number of year's respondent associated with the occupation				
1.	Less than 1	2	4	
2.	1-5	4	8	
3.	6-10	20	40	
4.	11-20	10	20	
5.	More than 20	14	28	

Table 3: Dealer perception on application of the different inorganic fertilizer on crop field								(n= 50)	
Name of the fertilizer	High		Medium		Normal		Low		
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Urea	40	80	10	20	-	-	-	-	
DAP (Di Ammonium phosphate)	36	72	14	28	-	-	-	-	
NPK(Nitrogen, phosphate: potash) 10: 26: 26	39	78	11	22	-	-	-	-	
SSP(Single super phosphate)	36	72	14	28	-	-	-	-	
MOP (Murat of potash)	40	80	10	20	-	-	-	-	
NPK(Nitrogen, phosphate: potash) 12:32:16	-	-	-	-	10	20	40	80	

and on application of inorganic fertilizer were medium in case of DAP (28%) and SSP (28%) followed by NPK 10:26:26 (22%). It was also found from the study that lowest application of inorganic fertilizer was NPK 12:32:16 (80%). It may be due to more dependent on other inorganic fertilizer, low risk bearing capacity or other socio-economic factor.

Conclusion :

It can be concluded from the investigation that majority of the respondents were high school and graduate and above pass. They were theoretically more knowledgeable and can codify a technology in one context to another context. They can more involve in promoting balance use of inorganic fertilizer through soil testing method among the farmers. The findings are in line with the results reported by Adler *et al.* (2003) and Uma *et al.* (1990). It was found that majority of the respondents land holding size were larger than other. This category respondent may more involve in motivating the farmers on safe use of inorganic fertilizer by showing practical demonstration in their own field (Plsek, 2003). It was shown that majority of the respondents were middle age group (more than 30 years to less than 50 years). This category age group was more involved professionally in fertilizer business. It was found that majority of the fertilizer dealer religion were hindu than muslim. So policy may be taken in a proper way which is not harmful on religion. It was shown that majority of the respondent family member size were less than 5. This category respondent may get more time to aware the farmers on balance use of inorganic fertilizer. The finding is in line with the results reported by Oluoch-Kosura *et al.* (2002). It was shown from the investigation that majority of the respondents were experienced in fertilizer business. They were attached more than 6 years in fertilizer business. They can take more initiative to motivate farmers on soil nutrient management. It was found from the investigation the respondent perception of the application of inorganic fertilizer were high in case of urea, MOP and NPK 10:26:26. So policy may be taken by the different government or private organisation on balance use of fertilizer on crop field through different awareness, training and demonstration programme for making sustainable agriculture.

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