

An Empirical Study on Farmers' Perception towards the use of Chemicals and Bio-Fertilizers

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ABSTRACT

Farmers' perception towards chemical and bio-fertilizers was assessed on the basis of primary as well as secondary data. The two blocks i.e. Ranbir Singh Pura and Satwari were selected for survey and from each block two villages were selected for the study. The 25 number of respondents from each village were taken which constituted the total 100 sample size. The present research was descriptive type and convenience sampling tools were used in present study. The study found the highest number of the respondents i.e. (46 per cent) said that they mostly use Urea, DAP and MOP. The highest number of the respondents i.e. (47 per cent) said that they use the fertilizers to get the quantity and production enhancement, the majority of the respondents (100 per cent) said that they purchase the fertilizers from local markets. The study revealed that the majority of the respondents i.e. (78 per cent) said that they take buying decision of fertilizers by themselves; the majority of the respondents i.e. (38 per cent) said that they have a highly satisfying overall experience of using fertilizers. The highest number of the respondents i.e. (36 per cent) was neutral with the statement. Regarding (I prefer bio-fertilizer because I get good quality) the least number of the respondents i.e. (9 per cent) were disagree with the statement. Regarding (I use bio-fertilizer because for best production) the least number of the respondents i.e. (11 per cent) were agree with the statement.

Keywords: Perception, Chemical, Fertilizer, Bio-fertilizer

Agricultural sector has been the foundation of Indian economy. Its growth and development across the regions and crops is of vital significance in ensuring food security, accomplishing self-reliance, supplying raw materials to industries and generating effective demand in the economy through linkages (Aaker, 2000). Though, in spite of intensive efforts by the government at the centre through planned outlay, there has been little structural transformation of the Indian agricultural sector. Agriculture is the main source of living for about 58 per cent of India's population. Gross Value Added (GVA) by agriculture, forestry and fishing was estimated at ₹ 19.48 lakh crore (US\$ 276.37 billion) in financial

year 2019-20. Growth in GVA in agriculture and allied sectors stood at 4 per cent in 2019-20 (ibef.org). Green Revolution during the mid sixties gave a considerable breakthrough in terms of increased productivity of agricultural crops, although it did not have a direct impact across all crops, regions and farm size. One of the significant changes took place with the advent of such a revolution is that the Indian agricultural sector shifted from a simple

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land-labour-bullock technology to improved seeds, fertilizers and new technology (Zhou, 2010). Mention to be made that given this situation, the Indian agricultural sector has to face serious confronts in the coming years, particularly in the wake of economic liberalization in creation agricultural production cost effective both in the domestic market as well as in the international market. The matter of interregional inequalities in the spot of economic development has also been echoed in the country and causes a serious confronts in the coming years (Patel, 2014; Bagal, 2018). While some parts, including the northern belts did well by virtue of early adoption of technology and gradually growth diffused to other sectors of economy, some parts, most notably the eastern belts, there are people still to attain basic minimum needs. These wide differences could be credited to d in agro climatic conditions, entrepreneurial ability and incentives provided to their agriculture and other economic activities. What is more pertaining to is the fact that despite Indian agriculture has accomplished self sufficiency in food grain, the country still has more than 250 million underfed people and persist with elevated underemployment. Large chunk of farm policies in the past have been commenced by the government in order to encourage development of Indian agriculture. Subsidization of key inputs is one among such policy measures which might reduce farm efficiency in the long run (Babu, 2010). This is because provision of agricultural subsidy at a massive scale dampens resources that could otherwise have utilized for promoting investment in agriculture. The Eleventh Plan acknowledged public investment in agriculture as one of the important determinants of agricultural growth in India. In other words, the government should play a major role in raising the level of public investment in agricultural sector through irrigation development, expansion of credit facilities, improving rural infrastructures, establishing market yards, research and extension services etc. This would not only gain a large section of farming community, primarily consisting of small and marginal farmers and the rural poor, but also give a stimulus to overall growth of the economy through backward and forward linkages. The limited scope for enhancing area under cultivation to expand agricultural production further imparts a strong ground for improvement of new technology, connecting gap between agricultural researches,

knowledge and putting them into practice, which for the most part come from public initiative. In recent years, though, public investment in agriculture in addition to investment on rural infrastructures has revealed a declining trend. The declining tendency of public investment, therefore, is a cause of concern for sustainable growth in Indian agriculture (Patak, 2009). The recent literatures on rural poverty and agricultural development greatly drawn the conclusion that decrease of rural poverty largely depends on growth in agricultural output. In a similar vein, agricultural growth largely depends on the improvement in rural infrastructures and other incentives provided to farm sector (Singh, 2013). The Indian agricultural sector development in the front of investment and growth has been presented below. The subsequent sections, thus, reviews some of the significant literature in agricultural investment and growth in India.

Fertilizers in brief

Fertilizers are food for plants. Fertilizer helps farmers feed our growing population. Plants need 17 essential nutrients in the soil to grow and survive. They assist to replenish these nutrients after each harvest. Fertilizers enhance the growth of plants. This objective is met in two ways, the traditional one being additives that provide nutrients. The second means by which some fertilizers act is to improve the effectiveness of the soil by changing its water retention and aeration.

Chemical Fertilizers

Chemical fertilizers are characterised as fertilizers consisting of inorganic chemicals which could be produced artificially. Some people call chemical fertilizers as Straight fertilizers. They are those which provide only one primary plant nutrient, namely nitrogen or phosphorus or potassium. E.g.: Urea, ammonium sulphate, potassium chloride and potassium sulphate. Farmers occasionally mix-up few types of chemical fertilizers to make a desired NPK proportion before application. It is relatively cost-saving method to manure crops but it requires knowledge and good understanding of soil nutrient requirement. The chemical fertilizer are those fertilizer which are made up by the process of chemical synthesis or chemical reactions, whose

ingredients have certain amount of nutrients for the plants, such as phosphorus, potassium, copper, zinc nitrogen, magnesium, calcium, sulphur, boron, manganese, iron, molybdenum, etc. including simple-substances and compound fertilizers.

Bio-fertilizers

Bio-fertilizers are described as biologically active products or microbial inoculants consisting of bacteria, algae, fungi or biological compound which may be advantageous to soil and plants. These fertilizers are not detrimental to the environment contrasting the chemical fertilizers. It's originated from plant or animal wastes along with the microbial mixtures. Microorganisms are used to enhance nutrient level uptake by the plants and restore biodiversity of the soil. Bio-fertilizers allow the plants develop in a healthy environment where it is doing not cause the pollution of any sort. Bio-fertilizer often refers to microbial fertilizers that use active microorganisms to enhance the nutrient concentration or their availability in soils, increase absorption, or protect the roots. It is generally called microbial fertilizer or microbial inoculants, because of the most frequent utilization of microorganisms. The bio-fertilizer products are modern fertilizer with new science and technology, and the classification differs a lot. It is principally classified in terms of microbial function. For instance, the application of nitrogen fixing microorganisms can augment the nitrogen source in soil. Nitrogen fixing microorganisms can also be classified into symbiotic nitrogen fixing microorganisms (such as *Azospirillum*). Mycorrhizal fungi can particularly assist the plants to dissolve the phosphorus fertilizer. There are different phosphate-solubilising microorganisms, and the insoluble phosphate can be dissolved into soluble phosphate.

The present study is conducted to study the farmers' perception towards chemical and bio-fertilizers. The study provides guideline for further research in area of fertilizer marketing. It primarily says about farmers' perception towards chemical and bio fertilizers. Furthermore the study shows a brief snap short of the present scenario of fertilizer marketing in India. The study shows upcoming challenges and opportunities fertilizer marketing with respect changing dynamics of internal & external business environment.

MATERIALS AND METHODS

The study was conducted in Jammu district of Union Territory of Jammu and Kashmir. The district was purposively selected with two blocks namely; Ranbirsingh Pura and Satwari, as majority of farmers are progressive and using chemical as well as bio fertilizers. The study was based on descriptive type of research. Random sampling technique was used for the study. Two villages from each block i.e. (Ranbirsingh Pura and Satwari) and 25 farmers / respondents from each village were selected randomly to constitute a sample size of 100 respondents. The present study adopted both the primary as well as the secondary data. Garret ranking technique was applied alongwith other analytical techniques.

RESULTS AND DISCUSSION

Perception of the respondents towards fertilizers

The perception of the respondents towards fertilizers is presented in Table 1. Regarding first statement (I prefer bio-fertilizer because I get good quality), 17 respondents i.e. (17 per cent) said that they are strongly agree, followed by 9 respondents i.e. (9 per cent) who said that they are agree, followed by 16 respondents i.e. (16 per cent) who said that they are neutral, followed by 36 respondents i.e. (36 per cent) who said that they are disagree, followed by 22 respondents i.e. (22 per cent) who said that they are strongly disagree. Regarding statement second (I use bio-fertilizer because for best production) out of 100 respondents the 4 respondents i.e. (4 per cent) said that they are strongly agree, followed by 0 respondents i.e. (0 per cent) said that they are agree, followed by 39 respondents i.e. (39 per cent) said that they are neutral, followed by 46 respondents i.e. (46 per cent) said that they are disagree, followed by 11 respondents i.e. (11 per cent) said that they are strongly disagree. Regarding (Regular use of bio-fertilizer increases land fertility) out of 100 respondents the 14 respondents i.e. (14 per cent) said that they are strongly agree, followed by 24 respondents i.e. (24 per cent) said that they are agree, followed by 17 respondents i.e. (17 per cent) said that they are neutral, followed by 21 respondents i.e. (21 per cent) said that they are disagree, followed by 24 respondents i.e. (24 per cent) said that they

are strongly disagree. Regarding (The price of bio-fertilizer is convenient for me) out of 100 respondents the 29 respondents i.e. (29 per cent) said that they are strongly agree, followed by 24 respondents i.e. (24 per cent) said that they are agree, followed by 0 respondents i.e. (0 per cent) said that they are neutral, followed by 15 respondents i.e. (15 per cent) said that they are disagree, followed by 32 respondents i.e. (32 per cent) said that they are strongly disagree.

Table 1: Fertilizers preferred by the respondents

Options	Frequency	Percentage
Urea	69	69
DAP	11	11
Bio-fertilizer	3	3
MOP	17	17
Total	100	100

Farmers’ perception towards bio-fertilizer

The majority of the respondents (69 per cent) said that they prefer urea, followed by (11 per cent) said that they prefer DAP, followed by (3 per cent) said that they prefer bio-fertilizers, followed by (17 per cent) said that they prefer MOP. Regarding (I prefer bio-fertilizer because I get good quality) the highest number of the respondents i.e. (36 per cent) were disagree with the statement. Regarding (I use bio-fertilizer because for best production) the highest number of the respondents i.e. (46 per cent) were disagree with the statement. Regarding (Regular use

of bio-fertilizer increases land fertility) the highest numbers of the respondents i.e. (24 per cent) were agree with the statement. Regarding (The price of bio-fertilizer is convenient for me) the highest number of the respondents i.e. (32 per cent) were strongly disagree with the statement (Table 2).

RECOMMENDATIONS

The fertilizer companies should adopt effective strategies to make good relations with farmers by satisfying their requirements, understanding their behaviour, etc. The fertilizer companies should ensure best pricing policies as the price was identified as the most important factors influencing the buying behaviour of farmers towards the fertilizers. The fertilizer companies should ensure the availability of fertilizers in the local markets because majority of the customers were purchasing the fertilizers from the local markets only.

CONCLUSIONS

The fertilizer companies should adopt effective strategies to make good relations with farmers by satisfying their requirements, understanding their behaviour, etc. The fertilizer companies should ensure best pricing policies as the price was identified as the most important factors influencing the buying behaviour of farmers towards the fertilizers. The fertilizer companies should ensure the availability of fertilizers in the local markets because majority of the customers were purchasing the fertilizers from the local markets only.

Table 2: Perception of the respondents towards fertilizer

Factors	Frequency					Total
	Strongly agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)	
I prefer bio- fertilizers because I get good quality	17	9	16	36	22	100
I use bio- fertilizers because for best production	4	0	39	46	11	100
Regular use of bio- fertilizer increases land fertility	14	24	17	21	24	100
The price of bio-fertilizer is convenient for me	29	24	0	15	32	100
Total	64	57	72	118	89	

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