

Role of Agri-input Dealers in Providing Extension Services to the Farmers of Bihar (India) and Their Role Expectation from Government Institutions

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Authors' contributions

This work was carried out in collaboration among all authors. Author SK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript.

Authors RA and SR managed the analyses of the study. Authors CKP and RKS helped in questionnaire preparation. All authors read approved the final manuscript.

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ABSTRACT

The present study was undertaken in Bhagalpur and Vaishali districts of Bihar (India) during 2017-19. The study focused on the farm extension services by agri-input dealers. The data was collected from 120 agri-input dealers through structured schedule. Findings of the study regarding after sale services information showed that the agri-input dealers do farmer's field visits very often. The agri-input dealers facilitate demonstration of new varieties of seeds, pesticides and herbicides in farmers' fields in collaboration with the company. They efficiently provide information related to new technologies. Governments' role in farm extension services to the farmer is unsatisfactory. Dissemination of latest technological information and farm implements through agri-input dealers will reduce the cost of cultivation. Thus agri-input dealers play a significant role in providing information to the farmers. However, most agri-input dealers have insufficient knowledge so they need training and exposure from government institutions.

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1. INTRODUCTION

Agri-input dealers sell farm inputs (fertilizers, seeds, pesticides, etc.) and provide farm extension services to the farmers. Agri-input dealers play important role in rural agrarian economy of Bihar. Agri-input dealer includes all the individuals or agencies dealing in seeds, fertilizers, pesticides, machinery etc., whether wholesale or retail. Agri-input dealers play a major role in ensuring that farmers access some of the important agricultural inputs required to improve agricultural productivity in their respective farms.

Various studies show that Agri-input dealers were consulted more frequently by farmers than other sources. Farm extension services in India are formally governed by Government Institutions like SAUs, State Department of Agriculture, KVKs, ICAR institutes etc. which are literally not sufficient for the vast farming community. Informally, farmers get their Agri-related counselling, services and inputs from the local Agri-input dealers. Although they receive money by selling this products and provide free of cost farm extension services to the farmers. Public extension service is often criticized for not being able to handle the multifarious demands of the farming community. Private sector extension providers viz., Agri-input Dealers, Producers Association, NGOs, Corporate sector etc. have entered the extension scenario. About 2.82 lakh Agri-Input Dealers are operating in rural areas covering almost all parts of the country [1]. There are 39 KVK which play a vital role in providing extension services. In every block there is one Block Technology Manager (BTM) and three Assistant Technology Managers (ATM) which may vary depending on the area of the block. At village level one Farmer Friend (FF) is available for every two village which act as an extension worker. But all these are not sufficient to full fill the farm extension services of a state in which 79% of the population is engaged in agriculture sector.

Dealer serves as an important link between the manufacturers and the farmers. So he has the responsibility to disseminate the latest farm technology up to the field level especially in the era of the free economy and world trade organization [2]. While purchasing different inputs required for farming operations, the farmer naturally tries to find out from the input dealer

about the usage of inputs, both in terms of quality and quantity. However, most of the Agri-input dealers do not have formal agricultural education. If these input dealers can be shaped as para-extension professionals by providing requisite knowledge, they can professionalise extension services and contribute to bring a paradigm shift in Indian Agriculture. In this context, the National Institute of Agriculture Extension Management (MANAGE) had designed a one-year diploma course titled 'Diploma in Agricultural Extension Services for Input Dealers (DAESI)' in the year 2003 and so far covered the practicing input dealers of Andhra Pradesh, Telangana, Tamil Nadu, Maharashtra, Orissa, Jharkhand, and West Bengal. The main aim of this program is to transform practicing input dealers into para-extension professionals thereby strengthening the agricultural extension system so as to enable these input dealers to serve the farmers better.

Bansal et al. [3] cleared that demo was the major (41.67%) promotional activity which was affecting the farmers' purchase behaviour because seeing is believing principle was mostly followed by the farmers followed by poster and exhibition promotional activities (20.83% each). Vittaldas [4] revealed that the dealers' advocations to company representatives for spot sales/demonstrations in the premises of their shop. Most of the dealers (83.33 %) advocated spot sales/demonstrations in the premises of their shop because according to these dealers it has given a unique status to the product and enabled them to sell well. A few examples are Nuziveedu Seed Company located in Hyderabad do extension related work through its programme, 'Subeej Krishi Vignan'. Fertiliser companies, such as IFFCO (Indian Farmers Fertiliser Co-operative Limited) and KRIBHCO (Krishak Bharati Cooperative), undertake extension activities by conducting farmer meetings, organizing crop seminars, arranging for soil testing facilities, adopting villages etc.

2. METHODOLOGY

Ex post facto search design was used for the present study. *Ex post facto* means something done or occurring after an event with a retroactive effect on an event [5]. Bhagalpur and Vaishali district of Bihar (India) were selected purposively for the study. Three blocks i.e. Sabour, Sonhaura and Goradiah of the Bhagalpur

district and three blocks i.e. Lalganj, Mahua and Goraul of Vaishali district was selected purposively because Vaishali and Bhagalpur is a hub of vegetable cultivation hence the total number of Agri-input dealers are quite more compare to other districts of Bihar. From each block twenty respondents were selected randomly. Hence the sample size was 120 and the number of block was six for the study. The study pertained to selected agriculture based enterprises established some years back and being run with varying degree of success. The Sampling plan of the present study considered both purposive sampling and simple random sampling techniques (lottery method). For collection of relevant data, a personal interview schedule was specially structured and prepared in order to get the desire response of farmers in face to face situation. The data were analyzed using various statistical tools such as frequency, percentage, mean score, standard deviation and ranking.

3. RESULTS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

3.1 Extension Services Provide by Agri-input Dealers to the Farmers

The above table shows statements that were used in calculating the information support after sale services of the respondents. It was found that "I do field visit in any problem reported by farmers." statements was ranked first (I) with weighted mean score 4.13 followed by "I give timely information to the farmer about the pest and disease and their control measures" statements as rank second (II) with weighted mean score 4.11, "I organise meeting in the village about various major issues related to agri-inputs use" statements consider as rank third (III) with weighted mean score 4.05. Other statements are "I organise meeting between the company representative and the farmers" statements as rank fourth (IV) with weighted mean score 3.85, "I do demonstration with coordination to farmers" statements was ranked fifth (V) with weighted mean score 3.53, "I give information of the market rate after the harvesting of the crops" statements was ranked sixth (VI) with weighted mean score 3.21, "Give compensation if there is a failure in the produce" statements was ranked seventh (VII) with weighted mean score 2.68, "I give rewards to the farmer for outstanding

performance" statements was ranked eighth (VIII) with weighted mean score 2.64. The least ranked "I ensure transportation service on bulk selling to the farmers" statements as rank ninth (IX) with weighted mean score 1.90 among the all of the statements in the Table 1.

As per the Table 2 shows statements that were used in calculating the demonstration conducted in farmers' field in collaboration with company. It was noted that Agri-input dealer facilitate demonstration of new variety seeds in farmer's field with collaboration of company was rank first (I) followed by they facilitate demonstration of herbicides in farmer's field with collaboration of company was rank second (II). Other statement is they facilitate demonstration of pesticides in farmer's field with collaboration of company was rank third (III) and the least ranked they facilitate demonstration of herbicides in farmer's field with collaboration of company as rank last (IV).

From the Table 3 it was noted that the statement "The institution should provide latest information about the new technology" was ranked first (I) in role expectation from different institutions followed by "The Agricultural universities should provide regular training to the input dealers" statement was ranked second (II), "The government should provide guidelines regarding use of pesticides and herbicides" statement was ranked third (III) and the statement "The government should provide easy norms in taking licence" was ranked last (X).

The study gives useful information about various mobile apps. The results indicate that majority of the respondents neither heard nor have access to the apps under study. Only 11.70 per cent respondents have heard and 03.33 per cent have access to Bihar krishi app. In case of Plantix 25.00 per cent respondents have heard and 05.83 per cent have access. In case of Kisan suvidha 16.70 per cent respondents have heard and only 02.50 per cent have access. In case of Pusakrishi app 18.30 per cent respondents have heard and 04.17 per cent have access and in case of Iffco kisan agriculture only 05.00 per cent respondents heard and 01.67 per cent has access.

Agri-input dealers have become one of the important source of farm information to the farming community though not equipped with adequate knowledge. The network of dealers has spread to the villages and is accepted as a

Table 1. Distribution of the respondent as per their information support after sale services

Sl. no.	Services	SA	A	UD	DA	SDA	Wt. mean	Rank
1	I do field visit in any problem reported and requested by farmers.	57.50% (69)	20.00% (24)	05.83% (7)	11.67% (14)	05.00% (6)	4.13	I
2	I give timely information to the farmer about the pest and disease and their control measures.	49.17% (59)	30.83% (37)	05.00% (6)	11.67% (14)	03.33% (4)	4.11	II
3	I organise meeting in the village about various major issues related to agri-inputs use.	48.33% (58)	30.84% (37)	03.33% (4)	12.50% (15)	05.00% (6)	4.05	III
4	I organise meeting between the company representative and the farmers	40.00% (48)	34.17% (41)	02.50% (3)	17.50 (21)	05.83% (7)	3.85	IV
5	I do demonstration with coordination to farmers.	46.67% (56)	11.67% (14)	00.00% (0)	31.66% (38)	10.00% (12)	3.53	V
6	I give information of the market rate after the harvesting of the crops.	17.50% (21)	35.83% (43)	01.67% (2)	40.00% (48)	05.00% (6)	3.21	VI
7	Give compensation if there is a failure in the produce	10.00% (12)	28.34% (34)	00.00% (0)	43.33% (52)	18.33% (22)	2.68	VII
8	I give rewards to the farmer for outstanding performance	10.83% (13)	18.33% (22)	01.67% (2)	62.50 (75)	06.67% (8)	2.64	VIII
9	I ensure transportation service on bulk selling to the farmers.	00.00% (0)	00.00% (0)	05.83% (7)	78.34% (94)	15.83% (19)	1.90	IX

SA = Strongly agree, A = Agree, UD = Undecided, DA = Disagree, SDA = Strongly disagree

Table 2. Distribution of the respondent as per their demonstration conducted in farmers' field in collaboration with company

SL. no.	Statements	SA	A	UD	DA	SDA	Wt. mean	Rank
1	I facilitate demonstration of new variety seeds in farmer's field with collaboration of company.	50.00% (60)	14.17% (17)	03.33% (4)	16.67% (20)	15.83% (19)	3.66	I
2	I facilitate demonstration of pesticides in farmer's field with collaboration of company.	40.83% (49)	21.67% (26)	05.83 (7)	19.17% (23)	12.50% (15)	3.59	II
3	I facilitate demonstration of herbicides in farmer's field with collaboration of company.	37.50% (45)	25.00% (30)	05.00% (6)	20.83% (25)	11.67% (14)	3.56	III
4	I facilitate demonstration of new fungicides in farmer's field with collaboration of company.	27.50% (33)	37.50% (45)	02.50% (3)	16.67% (20)	15.83% (19)	3.44	IV

SA = Strongly Agree, A = Agree, UD = Undecided, DA = Disagree, SDA = Strongly disagree

Table 3. Distribution of the respondent as per their role expectation from different institutions

SL. no.	Statements	SA	A	UD	DA	SDA	Wt. mean	Rank
1	The institution should provide latest information about the new technology.	62.50% (75)	37.50% (45)	00.00% (0)	00.00% (0)	00.00% (0)	4.62	I
2	The Agricultural universities should provide regular training to the input dealers.	45.83% (55)	54.17% (65)	00.00% (0)	00.00% (0)	00.00% (0)	4.46	II
3	The government should provide guidelines regarding use of pesticides and herbicides.	32.50% (39)	67.50% (81)	00.00% (0)	00.00% (0)	00.00% (0)	4.41	III
4	The government should provide supply of the new varieties seeds from the Agricultural university for selling to market.	55.00% (66)	40.83% (49)	04.17% (5)	00.00% (0)	00.00% (0)	4.38	IV
5	The institution should provide information about the weather conditions.	25.00% (30)	75.00% (90)	00.00% (0)	00.00% (0)	00.00% (0)	4.25	V
6	The government should give subsidies on expensive but necessary implements.	43.33% (52)	45.84% (55)	02.50% (3)	08.33 (10)	00.00% (0)	4.24	VI
7	The government should reduce unnecessary tax imposed by the government.	24.17% (29)	74.16% (89)	00.00% (0)	01.67% (2)	00.00% (0)	4.21	VII
8	The government should provide information about the subsidies.	33.33% (40)	44.17% (53)	04.17% (5)	18.33% (22)	00.00% (0)	3.92	VIII
9	The government should give subsidies on private company's seeds which are common in use and have good performance.	28.33% (34)	44.17% (53)	00.00% (0)	25.83% (31)	01.67% (2)	3.72	IX
10	The government should provide easy norms in taking licence.	29.17% (35)	38.33% (46)	05.83% (7)	26.67% (32)	00.00% (0)	3.70	X

SA = Strongly agree, A = Agree, UD = Undecided, DA = Disagree, SDA = Strongly disagree

Table 4. Distribution of the respondents as per their access to agri-mobile apps

Sl. no.	Mobile apps	Did you hear		Did you access	
		Yes	No	Yes	No
1	Bihar krishi app	11.70% (14)	88.30% (106)	03.33% (4)	96.67% (116)
2	Plantix	25.00% (30)	75.00% (90)	05.83% (7)	94.17% (113)
3	Kisan suvidha	16.70% (20)	83.30% (120)	02.50% (3)	97.50% (117)
4	Pusakrishi	18.30% (22)	81.70% (98)	04.17% (5)	95.83% (115)
5	IFFCO Kisan Agriculture	05.00% (6)	95.00% (114)	01.67% (2)	98.33% (118)

potent media to reach out to large farming community. In order to enable this network to serve the farming community in a better way, they need to be trained in scientific agriculture [6]. Chianu et al. [7] classified that Agri-input buyers (mostly farmers) gets benefited through input packaging. Data from the Agri-input dealers show that about 18100 farmers got benefited from this service in which about 83% of farmers were male. While only a few of the surveyed Agri-input dealers gave an estimate of the farmers that benefited from other extension services. It was revealed that in 100% of the cases male farmers got benefited from the extension services of Agri-input dealers. This was the case for both extension services i.e., free extension services (e.g., some aspects of the spraying services) and the services that were paid for and Sheikh et al. [8] observed that more than three fourth (76.70 per cent) of farmers are receiving extension services from private/pesticide companies' sources.

4. CONCLUSION

Findings of the study found that Agri-input dealers are one of the most frequently used information sources. Agri-input dealers provide after sale services to the farmers by visiting their field, by providing timely information on pest-disease management and organising training for the farmers. Agri-input dealers also facilitate demonstration of new technology in farmers' field in collaboration with private companies. Agri-input dealers expect that government institution viz. KVK, Agricultural colleges, state department of agriculture should provide latest information of their new technology. As the Agri-input dealers knowledge and access about different agri mobile apps is very limited, so sensitizing programme should be conducted to acquaint them with the important agri-mobile apps. Based on

the above study I recommended that Training programme for Agri-input dealer should be conducted in regular interval for updating their knowledge in agriculture sector for better extension services to the farmers. A sensitizing programme or short duration training programme in ICT in Agriculture Extension may be conducted for strengthening latest knowledge in ICT for Extension Services to the farmers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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