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DEALERS OUTLOOK TOWARDS VARIOUS INSECTICIDE BRAND AND CONSTRAINTS FACED BY ONION GROWERS IN AMRELI DISTRICT

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ABSTRACT

Onion (*Allium cepa L.*; Family: Amaryllidaceae) is one of the most important commercial vegetable crops. Onion is a cool season crop. India stands at second position in onion production. In India, Gujarat stands at second position in onion cultivation. The present study has been under taken in Rajula, Savar Kundla, Khambha and Dhari talukas of Amreli district, as all four talukas have higher areasunder onion cultivation. A multistage sampling technique was adopted toselect the districts, talukas, and villages. The study was mainly based on primary data,which were collected through personal interviews with the help of a structured survey schedule.Generally, most of the growers preferred to purchase insecticides by dealer's recommendation. It was also observed that across different insecticide companies dealer's margins varied from 10 to 17 per cent. The majority of the onion dealers have business experience of 11 to 15 years. The most important factor considered by dealers for selling onion insecticides was reported price followed by other factors *i.e.* quality and brand image. Onion dealers' major expectations from insecticide companies were reported as increasing margins and farmer satisfaction. The major constraints faced by onion growers during the purchase of insecticides were high prices followed by unavailable on time, and low effectiveness of insecticides, whereas for dealers competition among them was the major constraint. Companies should plan for effective field demonstrations, so that, onion growers can understand the difference between poor and good quality insecticide and important steps to be taken care of before use. Companies should also keep growers updated with the latest schemes and benefits launched from time to time.

Key words : Dealer's outlook, Dealer's margin,Likert scale,Constraints, Garrett's ranking,Onion and Growers

INTRODUCTION

Agricultural chemicals are vital to our welfare and the protection of the health of our families and pets. Unless and until, better more efficient, and more cost-effective means of pest control are developed, pesticides will remain a major weapon in our constant battle against pests. Indian growers need to be aware of the latest developments in this sector (John Kent,1992). About, 2 million tonnes of pesticides are utilized per annum

worldwide and increasing rapidlywhereas China is the major contributing country, followed by the USA and Brazil. However, by the year 2020, global pesticide usage has been estimated to increase up to 3.5 million tonnes. India is the leading exporter of pesticide to Brazil, USA and Bangladesh with quantity 129942million MT, 85577million MT and 36618 million MT respectively. Apart from fertilizers, pesticides played an important role in the green revolution during the last five decades. Indian exports of agrochemicals have shown impressive growth over the last five years (DPPQs, 2022).

India ranks second in the production of vegetables followed by China. India produced 137.99 million MT of vegetables in the year 2021. China is in the top of the charts by producing 600.01 million MT of vegetables (2021) in the world. India's total production of vegetables was recorded as 191769 MT in an area of 10353.88 ha in the year 2019-20. In the country's total production, West Bengal produces29293.24 MT in the area of 1496.07 ha, Uttar Pradesh produces 27195.17 MT in the area of 1274.80 ha, Madhya Pradesh produces 19144.37 MT in an area of 967.23 ha, followed by Bihar, Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh,*etc.* In the year 2021, vegetable's primary production for the world was reported as 1154 million MT. Tomatoes and onion production are reported as the highest globally. The global vegetable production in the year 2021 showed that approximately 189.13 million metric tonnes of tomatoes and 106.59 million metric tonnes of onion were produced worldwide (www.statista.com).

Onion (*Allium cepa L.*; Family: *Amaryllidaceae*) is one of the most important commercial vegetables. Onion production in China is 24,966,366 tonnes in an area of 1,128,970 ha with a yield of 22,114.3 Kg/ha. India produces 22,819,000 tonnes of onions under an area of 1,220,000 ha with the yield of 18,704.1 Kg/ha. The total production of onion in India is 26.15 million Tonnes in an area of 1.43 million hectares with yield of 16875 (Kg/ha) in the year 2019-20, which is the highest production and area in the last 20 years [ATLASBIG (2020)]. The total production of onions is 228.19 lakh tonnes and 268.55 lakh tonnes in the year 2018-19 and 2019-20 respectively. The major share is occupied by the Maharashtra state, and it produced 80.47 lakh tonnes and occupied 35.26 per cent share in 2018-19andproduced 113.63 lakh tonnesand occupied43.31 per cent sharein 2019-20. Gujarat produced 11.11 lakh tonnes and occupies 4.87 per cent share in 2018-19 and produced 12.43 lakh tonnes and occupied 4.63 per cent share in 2019-20 [AGRICOOP (2020)]. In Gujarat, the highest production of onion is in the Bhavnagar district with a production of 1191400 MT and productivity of 25.90 MT/ha in an area of 46000 ha and Amreli districtis having production 400350 MT and productivity of 25.50 MT/ha in an area of 15700 ha (Anon., 2022[d]). The present study was undertakento know the dealer's outlook, to find out major promotional measures followed by insecticide companies, and constraints faced by onion growers and dealers.

MATERIALS AND METHODS

The study was mainly based on primary data and a multi-stage sampling method was adopted as an appropriate sampling procedure for the study. In the first stage, Amreli district was purposively selected for the study Amreli district had 2[nd]rank in area and production of onion crop in overall

Gujarat state.In the second stage, four talukas from Amreli district were selected purposively *i.e.*,Rajula, Savar Kundla, Khambha and Dhari talukas as these four talukas have higher areas under onion crop cultivation. In the third stage, from each taluka, five villages were selected and from each village,sixonion growers were selected randomly, and thustotalof 120 onion growerswere selected for the study. The dealers were selected basedon the extent of purchase of insecticides used in onion crop by the growers and hence, a total of 20 dealers were selected to obtain the information required for the study.In order to analyze the various types of promotional measures carried out by different insecticide companies for onion growers, a personal interview method was employed with the help of a structured schedule (Patterson, 2006). The schedule contained statements under the following heads *viz.* major influencing factors which were considered by the onion growers in purchasing insecticides wereconsidered as dealers, field officer, fellow farmer, progressive farmer, media and own experience *etc.* Various promotional activities carried out by the insecticides companies as per onion growers were considered as farmer meeting, radio and television, field demonstrations, fairs and exhibitions, wall paintings, posters, banners, social media, and advertisements/ newspapers.To explore the dealers outlook about insecticides companies in the study area various parameters were used*i.e.*, distribution of insecticide dealers according to their business experience, dealers association with various onion insecticide companies over the year and dealer's margin across the different brands of onion insecticides.

$$\text{Dealers margin} = \frac{\text{per unit sales price of dealers - per unit purchase price of dealer}}{\text{unit purchase price of dealers}} \times 100$$

Likert scale technique

The dealer's rating for different insecticides on various parameters was found out by using Likert scale techniques and various parameters were used i.e., price, quality, brand image, demand, time availability, promotional scheme, and credit policy.

Likert scale was recorded on a 5-point Likert scales of 1- Highly disagree and 5- Highly agree. After gathering all the completed schedules from the respondents, the total responses for each item were gathered and tabulated. In order to use the Likert scale for interpretation, a weighted mean to represent each question will be computed. To compute the weighted mean, each value must be multiplied by its weight. Products should then be added to obtain the total value. The total weight should also be computed by adding all the weights. The total value is then divided by the total weight. Statistically, the weighted mean is calculated by using the formula mentioned below:

Cumulative Score =

$(F_1X_1 + F_2X_2 + F_3X_3 + \ldots\ldots + F_nX_n)$

Where,

F_n = Weight given to each response

X_n = Number of responses

$$\textbf{Weighted Mean} = \frac{(F_1X_1 + F_2X_2 + F_3X_3 + \ldots\ldots + F_nX_n)}{\text{Total number of responces } (X_t)}$$

Where,

X_t = Total number of responses

Garrett's ranking technique

The Garrett's ranking technique was used to analyse the constraint faced by growers and insecticides dealersand similar method was adopted by Kumar *et al.*, (2019), Sharma *et al.*, (2020) and Zalkuwi *et al.*, (2015). As per this method, respondents was asked to assign the rank for all factors and the outcome of such ranking was converted into score value with the help of the following formula:

$$Percent\ position = \frac{100(R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for the i^{th} variable by j^{th} respondents

N_j = Number of variables ranked by j^{th} respondents

RESULTS AND DISCUSSION

1. Major factors considered by the onion growers in purchas in gin secticides

Table 1: Factors considered by growers in purchasing of insecticides (n=120)

Sr. No.	Particulars	Frequency	Percentage
1.	Dealers	83	69.17
2.	Marketing officer	06	05.00
3.	Fellow farmer	54	45.00
4.	Progressive farmer	53	44.17
5.	Media	01	00.83
6.	Own experience	60	50.00
7.	Others	03	02.50

The resultsshowed that 69.17 per cent onion growers purchased onioninsecticides as per dealer'ssuggestion followed by 50.00 per cent onion growers purchased the onioninsecticides on their own experience. Similarly, 45.00per cent of farmers purchased onion in secticides according to the advice of fellow farmer followed by 44.17 per cent of growers consultedprogressive farmers and 05.00 percent of growers consulted marketing officer. Only 02.50 per cent followed other people who were working in agricultural branches or insecticide companies of their relatives and 00.83 per cent onion growers have purchased onion in secticides based on media like television and radio *etc.*

2. Promotional activities carried out by the companies

Table2 : Promotional activities carried out by the companies as per onion growers (n=120)

Sr. No.	Particulars	Frequency	Percentage
1.	Farmer meeting	80	66.67
2.	Radio & Television	41	34.17
3.	Field demonstration	90	75.00
4.	Fair and exhibition	53	44.17
5.	Wall painting, Poster, Banner	18	15.00
6.	Social media	38	31.67
7.	Advertisement/News paper	40	33.33

3. Business experience of onion insecticides dealers

Table 3 : Distribution of onion dealers according to their business experience (n=20)

Sr. No.	Business experience	Frequency	Percentage
1.	Up to 5 years	02	10.00
2.	6 to 10 years	04	20.00
3.	11 to 15 years	07	35.00
4.	16 to 20 years	04	20.00
5.	Above 20 years	03	15.00
	TOTAL	20	100.00

The onion dealers were categorized into five groups based on their business experience. The highest per cent (35.00%) of onion dealers belonged to 11 to 15 years category followed by 6 to 10 years and 16 to 20 years category (20.00%), above 20 years category (15.00%), only a few of them belonged to the category of up to 5 years (10.00%). This pattern of business experience showed that the majority of onion dealers belonged to the 11 to 15 years of business experience category.

4. Dealers association with insecticides companies

Table4 : Dealer association with insecticide companies over the year (n=20)

Sr. No.	Dealer association	Frequency	Percentage
1.	Less than 2 years	01	05.00
2.	2 to 5 years	01	05.00
3.	6 to 10 years	04	20.00
4.	11 to 15 years	07	35.00
5.	More than 15 years	07	35.00
	TOTAL	20	100.00

The results showed that 35.00 per cent of onion dealers associated from more than 15 years followed by 35.00per cent of onion dealers associated from11 to 15 years, 20.00 per cent of onion dealers associated from 6 to 10 years, 05.00 per cent of onion dealers associated less than 2 years and 05.00per cent onion dealer associated with 2 to 5 years. This result showed the emergence of day-to-day new dealerships with new insecticide companies.

Table 5 : Dealer association with different insecticide companies over the year (n=20)

Dealer association	UPL	Agrichem Life Science Private Limited	PI Industries Limited (PI)	GSP Crop Science Private Limited	Dhanuka Agritech Limited	Dharmaj Crop Guard Limited
Less than 2 years	00	01	00	01	06	00
2 to 5 years	02	10	07	04	04	06
6 to 10 years	05	09	05	07	05	14
11 to 15 years	06	00	04	06	05	00
More than 15 years	07	00	04	02	04	00

The results showed that 07 dealers associated with United Phosphorus Limited insecticide company for more than 15 years, 10 dealers associated with Agrichem Life Science Private Limited insecticide company for 2-5 years, 07 dealers associated with PI Industries Limited in secticide company for 2-5 years, 07 dealers associated with GSP Crop Science Private Limited insecticide company for more than 6-10 years, 06 dealers associated with Dhanuka Agritech Limited insecticide company for less than 2 years and 14 dealers associated with Dharmraj Crop Guard Limited insecticide company for more than 6-10 years.

5. Different brand wise dealer's margins in onion insecticide marketing

Table 6 : Dealer's margin across the different brands of insecticides used in onion crop

(n=20)

Sr. No.	Companies name	Margin (%)
1.	United Phosphorus Limited	12.57
2.	Agrichem Life Science Private Limited	17.18
3.	PI Industries Limited (PI)	13.55
4.	GSP Crop Science Private Limited	14.63
5.	Dhanuka Agritech Limited	10.98
6.	Dharmaj Crop Guard Limited	13.88

The results revealed that dealers were getting 17.18 per cent margin on Agrichem Life Science Private Limited, 14.63 per cent on GSP Crop Science Private Limited, 13.88 per cent on Dharmaj Crop Guard Limited., 13.55 per cent on PI Industries Limited (PI), 12.57 per cent on United Phosphorus Limited. and 10.98 per cent on Dhanuka Agritech Limited Company's onion insecticides marketing. UPL and Dhanuka Agritech Limited hadthe lowest margin among these companies.

6. Dealer's rating for insecticides used in onion on various parameters

Table 7 : Dealer's rating for onion insecticides on various parameters **(n=20)**

Rating parameter	Always (5)	Mostly (4)	Often (3)	Rarely (2)	Never (1)	C. S.	Mean	Rank
Price	5(25)	8(32)	4(12)	1(2)	00	71	3.55	I
Quality	4(20)	8(32)	3(9)	1(2)	00	63	3.15	II
Brand image	3(15)	8(32)	4(12)	00	00	59	2.95	III
Demand	2(10)	8(32)	4(12)	00	00	54	2.70	IV
Time availability	4(20)	4(16)	2(6)	00	00	42	2.60	V
Promotional scheme	2(10)	2(8)	3(9)	5(10)	00	37	1.85	VI
Credit policy	4(20)	2(8)	2(6)	00	00	34	1.70	VII

(Always-5, Mostly-4, Often-3, Rarely-2, Never-1)

(Note: Figure in parenthesis are individual scores obtained through multiplication of frequency and weight)

The above table indicated that price (1st) was the first and most important factor for growers while purchasing insecticides followed by quality (2nd), brand image (3rd), demand (4th), time availability (5th), promotional scheme (6th), and credit policy (7th). Brand image plays an important role at the time of the sale of insecticide to growers. More demand and lower-priced insecticides give more margin to dealers. This finding is in accordance with the finding of Reddy *et al.* (2015), those were also reported that the quality parameter ranks second according to the dealer's rating.

7. Expectations of dealers from the company

Table 8 : Expectations of dealers from insecticides companies

Sr. No.	Expectation	Garrett's Score	Rank
1.	Increasing margin	56.50	I
2.	Grower's satisfaction	50.85	II
3.	Easy and on-time availability	50.75	III
4.	More promotional measures by the company	48.25	IV
5.	Bonus	41.65	V

The expectations of onion growers from the company are presented in Table 8. Increasing margin ranked first which shows that the dealers also expect more margin from the company and more profit in business and grower's satisfaction ranked second which shows onion growersare satisfied with the product followed by third-ranked was easy and on-time availability of insecticides because at the time of cultivation season, the onion insecticides were available within this time period, more promotional measures by company ranked fourth which showed that the dealers also expect highest production varieties from insecticides company to increase the exposure of the

brand and also increase growers output and last fifth rank was bonus like tour and gifts from the companies.From the above discussion, it revealed that most of the respondents have expectations of increasing margins from the companies.

8. Constraints faced by growers during the purchase of insecticides

Table 9 : Constraints faced by onion growers during the purchase of insecticides (n=120)

Sr. No.	Constraints faced by growers	Garrett's Score	Rank
1.	High price of insecticides	57.91	I
2.	Unavailable on time	57.11	II
3.	Low effectiveness of insecticides	54.54	III
4.	More distance to the point of purchased insecticides	53.17	IV
5.	Wrong information	53.05	V
6.	Packaging	47.81	VI
7.	No discount	23.54	VII

The results showed Garrett's mean score and ranking of various constraints faced by growers, Among the seven problems, the high price of insecticides was given the first rank followed by unavailable on time (second rank), low effectiveness of insecticides (third rank), more distance to point of purchase insecticides (fourth rank). Other constraints faced by the onion growers were wrong information (fifth rank), packaging (sixth rank), and no discount (seventh rank). Similar results have been reported by Prajapati *et al.* (2016), that the higher price of insecticides was the major constraint faced by growers.

9. Constraints faced by growers during the use of insecticides

Table 10 : Constraints faced by onion growers during the use of insecticides (n=120)

Sr. No.	Constraints faced by growers	Garrett's Score	Rank
1.	Hazardous effect	55.26	I
2.	Lack of knowledge about the use of insecticides	50.56	II
3.	Adulteration and poor-quality of chemicals	48.50	III
4.	Effect of toxicity on crop residue	47.69	IV
5.	Damage to the crop plant	45.99	V

The results of the study showed that onion growers faced major constraints as the hazardous effect of insecticides on human health followed by a lack of knowledge about the use of insecticides, adulteration and poor quality of chemicals, effect of toxicity on crop residue, and damage to the crop plant.

10. Constraints faced by dealers during the selling of insecticides

Table 11 : Constraints faced by dealers during the selling of insecticide used in onion crop

(n=20)

Sr. No.	Constraints faced by dealers	Garrett's Score	Rank
1.	Competition among dealer	51.90	I
2.	Fluctuation of selling on seasonal basis	51.35	II
3.	Less number of brands available	51.20	III
4.	Lack of staff	50.10	IV
5.	Lack of promotional scheme	49.15	V
6.	High cost of advertisement	45.30	VI

The results showed Garrett's mean score and various ranks for constraints faced by dealers during the selling of insecticides, whereas, competition among dealers was given the first rank followed by fluctuation of selling on seasonal basis (second rank), less number of brands available (third rank), lack of staff (fourth rank). Other constraints faced by the onion growers were lack of promotional scheme (fifth rank) and high cost of advertisement (sixth rank).

CONCLUSION

The study found that most of the onion growers purchased onion insecticides as per the dealer's suggestion. Most of the onion growers responded that companies organized field demonstrations and leveraged farmer meeting platforms for promotional purposes.The results revealed that dealers were getting good margins from Agrichem Life Science Private Limited and GSP Crop Science Private Limited. The majority of the onion dealers have business experience of 11 to 15 years. The most important factor considered by dealers for selling onion insecticides was reported price followed by other factors *i.e.* quality and brand image. According to the study dealer's major expectations from the insecticide, companies were increasing margin and more promotional measures by the company followed by farmers' satisfaction, easy and timely availability and bonus. The results of the study showed that onion growers faced major constraints during the purchase of insecticides as the high price of insecticides followed by low effectiveness insecticides and unavailability on time whereas dealers faced major constraints as competition among dealers followed by the fluctuation of selling on a seasonal basis, lack of field staff, and less number of brands available. Companies should plan for effective field demonstrations, so that, onion growers can understand the difference between poor and good quality insecticide and important steps to be taken care of before use. Companies should also keep growers updated with the latest schemes and benefits launched.

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