

A STUDY ON MARKETING OF SELECTIVE HERBICIDE IN THE KURUKSHETRA DISTRICT OF HARYANA

Comment [Z1]: The title is good (13 words)

Abstract:

Herbicides are pesticides that control or eliminate unwanted plants, commonly known as weeds. Herbicides work by disrupting various physiological processes in plants, including photosynthesis, cellular respiration, and cell division. One of the main advantages of herbicides is their effectiveness in controlling weeds and improving crop yields. There are two marketing channels involved in the marketing of Calaris Xtra in the Kurukshetra district of Haryana, out of which channel 2(Producer-Wholesaler-Retailer-Consumer) is preferred over channel 1(Producer-Wholesaler-Consumer). Eventually, the selling price of the Calaris Xtra to the consumers was Rs.1300/ 700ml bottle. Eventually, the total marketing margin in channel 1 was Rs.250, the marketing cost was Rs.54, and the marketing efficiency was 4.27%. And price spread in Channel 1 is Rs 104, and in Channel 2, the total marketing cost was Rs.71, the whole marketing margin in Channel 2 is Rs. 283, the marketing efficiency is 3.89%, and the price spread seen in Channel 2 is Rs 184. The constraint in marketing Calaris Xtra herbicide with High cost of transportation, with 30 respondents' responses ranked I, followed by Storage Problems with 20 respondents' answers ranked II, followed by High prices with 18 respondents' responses ranked III, followed by Shortage of trading with 16 respondents response ranked IV, followed by delayed sale with 11 respondents response ranked V, followed by price fluctuation with five respondents response ranked VI.

Comment [Z2]: Abstract is good (224 words).
Maximum abstract of 250 words, it is recommended to add research objectives

Keywords: Herbicides, Management, Marketing

Comment [Z3]: Keywords are good (3 words).
Maximum keywords are 5 words, it is recommended to add 2 more important words

Introduction:

The history of herbicides dates back to ancient times, when early civilizations used salt, vinegar, and other natural substances to control weed growth. In the 20th century, synthetic herbicide development revolutionized agriculture's weed management, leading to higher crop yields and

increased food production. Today, herbicides are a vital tool in modern agriculture and landscaping practices. Herbicides work by disrupting various physiological processes in plants, including photosynthesis, cellular respiration, and cell division. There are three main categories of herbicides: contact, systemic, and pre-emergent. Contact herbicides kill only the parts of the plant they come into direct contact with, while systemic herbicides are absorbed by the plant and transported throughout the plant's tissue, killing it from the roots up. Pre-emergent herbicides are applied before weed seeds germinate and prevent them from sprouting. Selective herbicides target specific types of plants, while non-selective herbicides kill all plants they come into contact with. For example, glyphosate, a popular non-selective herbicide, is used in agriculture and landscaping to control weeds in fields, pastures, and along roadsides. Other common herbicides include atrazine, 2,4-D, and dicamba, used in various agricultural settings to control broadleaf weeds and grasses. One of the main advantages of herbicides is their effectiveness in controlling weeds and improving crop yields. By reducing weed competition for nutrients, water, and sunlight, herbicides allow crops to grow more vigorously and produce higher results. Additionally, using herbicides can reduce labor costs associated with manual weed control and reduce the need for mechanical cultivation, which can damage soil health.

Comment [Z4]: Introduction is good, but it is recommended to add 3-5 references

Research and Methodology

Comment [Z5]: Research and Methodology are good. However, it is recommended to add 1-2 references to each subchapter

1. Selection of District:

There is 22 District in Haryana state, and district names Panchkula, Ambala, Yamunanagar, Kurukshetra, Karnal, Kaithal, Jind, Fatehabad, Hisar, Sonapat, Rohtak, Bhiwani, Jhajjar, Gurgaon, Mahendranagar, Mewat, Rewari, Sirsa, Faridabad, Panipat, Charkhi Dari, Palwal. The Kurukshetra District of Haryana was selected purposively based on the maximum area under sugarcane cultivation.

2. Selection of Block:

There are seven blocks in the district. Out of these, Ladwa was selected purposively for the study. The agro condition of the block is suitable for Sugarcane cultivation. The farmers of this block have been growing the Sugarcane for several years.

3. Selections of Villages:

There are 59 villages in Ladwa block obtained from the block development office. After that, these villages were arranged in order based on the land holding area. Thus out of the whole villages, 5% of towns were selected randomly for the present study.

4. Selection of Respondents

The selected village list of all Soyabean cultivating farmers was obtained from each village's block development office. Ascending order based on the size of their landholding, the selection of cultivators from families was listed, and 120 farmers were randomly selected from the entire village.

5: Selection of Market and Market Functionaries:

5.1 Market: Two types of markets were selected purposively for the study:

Primary market: The primary market (Ladwa, etc.) was established purposively.

Secondary market: Ladwa market was selected purposively.

5.2 Market Functionaries

The market functionaries were considered for data collection regarding other marketing charges in different channels. The list of all market functionaries was prepared with the help of primary and secondary market offices. Then out of the total number of market functionaries like five wholesalers, seven retailers, 13 Consumers etc., market functionaries were selected purposively for the present study.

Analytical Tools:

Chi-Square: Chi-square is a statistical test used to examine the differences between categorical variables from a random sample to judge the goodness of fit between expected and observed results.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Marketing cost:

The total cost incurred on marketing by various intermediaries involved in the sale and Purchase of the commodity

$$C = CF + Cm1 + Cm2 + Cm3 + \dots + Cmn$$

Price Spread:

The price spread is defined as the difference between the price paid by consumers and the net price received by the producer

$$\text{Price Spread} = (\text{Consumer price} - \text{Net Price of Producer})$$

Garret Ranking:

Garrett's ranking technique has been used to know the acceptance of respondents and constraints in processing and marketing Herbicide products. Garrett's formula for converting ranks into cents was given by,

$$\text{Per cent position} = 100 (R_{ij} - 0.5) / N_j$$

Results and Discussion:

1. To study the socio-economic profile of the respondent in the study area.

Table1. Distribution of farmers according to farm size

| S. No. | Categories(members) | Respondent | |
|--------|--------------------------------------|------------|------------|
| | | Number | Percentage |
| 1. | Marginal (< 1.00 hectare) | 30 | 30.00 |
| 2. | Small Farmers (1.00-2.00 hectares) | 23 | 23.00 |
| 3. | Semi Medium Farmer (2.00-4.00) | 18 | 18.00 |
| 4. | Medium Farmers (4.00-10.00 hectares) | 15 | 15.00 |
| 5. | Large Farmers (Above 10.00 hectares) | 14 | 14.00 |
| Total | | 120 | 100.00 |

Comment [Z6]: Results are good, but discussion recommended to add 1-2 references to each subchapter

Table1. Out of the total 100 respondents, 30 had marginal size farm, 23 had small size farm, 18 had semi medium size farm, 15 had medium-sized farms, and 14 had large-size farms.

Table2. Distribution of respondents based on their age

| S. No. | Categories | Respondents Number | Respondents | | | | | Percentage |
|--------|--------------------------------|--------------------|-------------|-------|-------------|--------|-------|------------|
| | | | Marginal | Small | Semi medium | Medium | Large | |
| 1. | Young age group (20-35 years) | 60 | 21 | 11 | 11 | 9 | 8 | 60.00 |
| 2. | Middle age group (36-50 years) | 30 | 6 | 10 | 5 | 5 | 4 | 30.00 |
| 3. | Old age group (above 50 years) | 10 | 3 | 2 | 2 | 1 | 2 | 10.00 |
| | Total | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |

Table2. From this Table, it can be concluded that 60 (60.00 %) respondents are in the young age group of 20- 35, 30 (30.00%) respondents are in the middle age group of 36-50, 10 (10.00%) respondents are in old age of above 50. Therefore, most respondents are in the young age group of 20-35.

Table 3: Distribution of respondents based on their age.

| S. No. | Categories | Respondents Number | Respondents | | | | | Percentage |
|--------|--------------------|--------------------|-------------|-------|------------|--------|-------|------------|
| | | | Marginal | Small | Semi small | Medium | Large | |
| 1. | Primary School | 17 | 6 | 2 | 4 | 3 | 2 | 17.00 |
| 2. | Junior high school | 10 | 3 | 3 | 1 | 1 | 2 | 10.00 |
| 3. | High school | 12 | 2 | 4 | 3 | 2 | 1 | 12.00 |
| 4. | Intermediate | 11 | 3 | 2 | 2 | 3 | 1 | 11.00 |
| 5. | Graduate | 1 | 0 | 0 | 0 | 1 | 0 | 01.00 |
| A. | Total literate | 51 | 14 | 11 | 10 | 10 | 6 | 51.00 |
| 6. | illiterate | 49 | 16 | 12 | 8 | 5 | 8 | 49.00 |
| | total | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |

Table3. The highest number of respondents were educated till primary school that is 17 (17.00%), followed by respondents who were educated till high school that is 12 (12.00%), followed by respondents who were educated till intermediate that is 11 (11.00%), followed by respondents were educated till Junior high school that is 10 (10.00%) followed by respondents were educated till graduation that is 1 (1.00%). Thus total literate found in the study area is 51 (51.00%).

Table 4: Distribution of respondents according to their gender.

| S. No. | Category | Respondents number | respondents | | | | | Percentage |
|--------|----------|--------------------|-------------|-------|-------------|--------|-------|------------|
| | | | Marginal | Small | Semi medium | Medium | Large | |
| 1. | Male | 86 | 27 | 21 | 15 | 13 | 10 | 86.00 |
| 2. | female | 14 | 3 | 2 | 3 | 2 | 4 | 14.00 |
| Total | | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |

Table4. As gender affects the buying decision, it has an essential association in market-related research. Due to the distinction in their perception and socialization, men and females tend to have distinct conclusions while buying. Out of the 100 respondents, 86 were male, 86.00%, while the remaining 14 were female, 14.00% of the total sample.

Table5. Distribution of respondents according to their caste category

| S. No. | Category | Respondents number | respondents | | | | | Percentage |
|--------|----------|--------------------|-------------|-------|-------------|--------|-------|------------|
| | | | Marginal | Small | Semi medium | Medium | Large | |
| 1. | General | 49 | 16 | 11 | 9 | 6 | 7 | 49.00 |
| 2. | OBC | 30 | 8 | 8 | 5 | 5 | 4 | 30.00 |
| 3. | SC/ST | 21 | 6 | 4 | 4 | 4 | 3 | 21.00 |
| Total | | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |

Table5. As caste affects the buying decision, it is associated with market-related research. Due to the distinction in their perception and socialization, Caste Categories tend to have distinct conclusions while buying. Of the 100 respondents, 49 belonged to the general category of 49.00%, followed by 30 where OBC is 30.00%, while the remaining 21 were SC/ST, which is 21.00% of the total sample.

Table 6: Distribution of respondents according to their Family type.

| S. No. | Category | Respondents number | Respondents | | | | | Percentage |
|--------|----------|--------------------|-------------|-------|-------------|--------|-------|------------|
| | | | Marginal | Small | Semi medium | Medium | Large | |
| 1. | Nuclear | 90 | 29 | 22 | 15 | 13 | 11 | 90.00 |
| 2. | Joint | 10 | 1 | 1 | 3 | 2 | 3 | 10.00 |

| | | | | | | | |
|-------|-----|----|----|----|----|----|--------|
| Total | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |
|-------|-----|----|----|----|----|----|--------|

Table6. As family affects buying decisions, it is an essential association in market-related research. Due to the distinction in their perception and socialization, joint and nuclear families tend to have distinct conclusions while buying. Out of the 100 respondents, 90 lived in a nuclear family, and ten lived in a joint family.

Table 7: Distribution of respondents according to their religion.

| S. No. | Category | Respondents number | respondents | | | | | Percentage |
|--------|-----------|--------------------|-------------|-------|-------------|--------|-------|------------|
| | | | Marginal | Small | Semi medium | Medium | Large | |
| 1. | Hindu | 70 | 22 | 16 | 10 | 11 | 11 | 70.00 |
| 2. | Muslim | 20 | 5 | 5 | 7 | 1 | 2 | 20.00 |
| 3. | Christian | 10 | 3 | 2 | 1 | 3 | 1 | 10.00 |
| Total | | 100 | 30 | 23 | 18 | 15 | 14 | 100.00 |

Table7. As religion affects the buying decision, it is associated with market-related research. Due to the distinction in their perception and socialization, relations tend to have distinct conclusions while buying. Of the 100 respondents, 70 were Hindu, 70.00, 20 belonged to Muslim, 20.00, and ten were Christian, 10.00 the total sample.

2. To find out different marketing channels involved in the marketing of Calaris Xtra.

Table 8: Reveals the preferred marketing channel by the respondent farmers.

| S. No. | Channel type | No. of Respondents | Percentage |
|--------|--------------|--------------------|------------|
| 1. | Channel - I | 15 | 15.00 |

| | | | |
|-------|--------------|-----|--------|
| 2. | Channel - II | 85 | 85.00 |
| Total | | 100 | 100.00 |

Table8. reveals during the study that among 100 samples, 15(15.00%) preferred channel 1 to buy and sell Calaris Xtra through channel 1, and left 85 (85.00%) respondents preferred channel -2 to buy or sell Calaris Xtra in the study area.

SUGGESTIONS:

- Field staff should be well educated and have a good sense of humour and sharp mind. •
Number of staff should be enough for each level of work.
- The strategy should be made to fulfil all the recommendations of farmers.
- Field staff should keep in mind that our consumers are the giver.
- The company should give an appraisal to the staff for their excellent work.
- Fieldwork is the most necessary part and should be done with great potential.
- The company should also focus on medium and small landholding farmers to strengthen its market grip.
- Quality of products, its packaging supply should be good.

Conclusion:

During the present study, it was revealed that in farm size category, the maximum of the farmer lies in the marginal size farm category, followed by small farm size, followed by semi-medium size farm category, medium farm size category, and lastly, large farm size category. In the age category, it is seen that the maximum of respondents is in the young age category followed by middle group age and lastly, old age group. In the education category, it had been seen that of the total respondents were illiterate, 49 and left 51 were literate in different types. In the gender category, it had been seen that 86 were male among all respondents, and 14 were female. In the caste category, it has been noticed that most respondents belonged to the general class, followed by OBC with SC/ST. In family type, it has been seen that 90 of the total respondents were living in the nuclear family and left ten were living in a joint family. In the religion category, it has been noticed that maximum were Hindu, followed by Muslim and lastly, Christian. There are

two marketing channels involved in the marketing of Calaris Xtra in the Kurukshetra district of Haryana, out of which channel 2(Producer-Wholesaler-Retailer - Consumer) is preferred over channel 1(Producer-Wholesaler-Consumer). Eventually the selling price of the Calaris Xtra to the consumers was Rs.1300/ 700ml bottle. Eventually, the total marketing margin in channel 1 was Rs.250, the marketing cost was Rs.54, and the marketing efficiency was 4.27%. And price spread in Channel 1 is Rs 104, and in Channel 2, the total marketing cost was Rs.71, the whole marketing margin in Channel 2 is Rs. 283, the marketing efficiency is 3.89%, and the price spread seen in Channel 2 is Rs 184. The constraint in marketing Calaris Xtra herbicide with High cost of transportation, with 30 respondents' responses ranked I, followed by Storage Problems with 20 respondents' answers ranked II, followed by High prices with 18 respondents' responses ranked III, followed by Shortage of trading with 16 respondents response ranked IV, followed by delayed sale with 11 respondents response ranked V, followed by price fluctuation with five respondents response ranked VI.

Comment [Z7]: Conclusion is good

References:

- 1 **Aggarwal (2022)** suggested that Consumer behaviour research is the scientific study of the processes consumers use to select, secure, use and dispose of products and services that satisfy their needs. Res., 39: 161-166.
- 2 **Ajay (2019)** studied farmer's buying behavior for pesticides revealed that farmers still depended on the written media for information. Journal of Economic and social development, vol. v, no. 1.
- 3 **Anwar (2018)** studied farmers buying behavior on pesticide products and reported that past experience was an important reason for using a pesticide. Lumle Regional Agricultural Research Centre Review Paper, 95 (18): 23
- 4 **Appunu et al. (2020)** have reported that Vigna mungo, V. radiata and V. unguiculata plants sampled in different agronomical-ecological climatic regions of India are modulated by Bradyrhizobium yuanmingense, Indian Journal of Agricultural Economics, 52(3): 463-464.
- 5 **Ashish (2018)** observed that private dealers, extension officials and advertisements in mass media were the major sources of information for farmers, which guided them in selection of brands. IJPR Vol. 3 July 2018 No. Ipp97-98.

Comment [Z8]: References are good. Sufficient and up-to-date references and recommended that reference citations use Mendeley IEEE or APA and a maximum of 20 years of reference. a minimum of 15 references to international journals

- 6 Bharttacharya(2018)**, I alto causes wilting of seedlings and kaf necrosis in several pants. These symptoms were similar to those produced by the fungus itself, thus the toxin plays a key role in athogenesis. *Agricultural Situation in India*, 46 (4):279-284.
- 7 Chandan and Prajapati (2021)** studied that the farmers were not having a very strong brandloyalty as far as pesticides are concerned, though their loyalty did increase as their associationwith the brand grew old. *Sustainable agriculture and food security*, 327-398.
- 8 Dhar et al. (2021)** first isolated and elucidated the structure of a phototoxic metabolite, phaseolinone 1, from the culture filtrate of *M. phaseolina*. Phaseolinone is a nonspecific Exo-toxin which inhibits seed germination of a large number of plants." *Karnataka Journal of Agricultural Sciences*; 25(4):431-436. 10.
- 9 Leonard P Gianessi (2017)** Herbicide use is increasingly being adopted around the world. Many developing countries (India, China, and Bangladesh) are facing shortages of workers to hand weed fields as millions of people move from rural to urban areas. *Journal of economic and social development*, vol. v, no. 1.
- 10 Sanjay and Arora (2020)** reported that the monthly income of majority of the farmers was low, which has posed a serious problem in acquiring the recommended herbicide to combat pests in their farms." *agricultural research communication centre, Indian J. Agric. Res.*, 49 (2) 2020: 114-124