

Farmers' perception, purchase influencing factors and expenditure share on Syngenta crop protection products in cotton cultivation in Yavatmal District

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Abstract

This study examines Cotton growers' perception, the factors influencing their purchase decisions, and the expenditure share on Syngenta crop protection products across Maregaon, Wani and Zarijamni talukas of Yavatmal district, drawing on primary data from 90 surveyed farmers. Farmers held a broadly favourable perception of Syngenta products, with market availability recording the highest mean score (4.33), followed by quality (4.10), effectiveness (4.02) and trust in the brand (3.96); price, in sharp contrast, was rated poorly (mean score 1.89), reflecting strong price sensitivity despite otherwise positive views on performance and accessibility. Ranking analysis of eight purchase-influencing factors showed that quality was the single most decisive factor (mean rank score 1.18), followed by product availability (2.10) and brand reputation and trust (2.78), while price was ranked least influential (7.82), indicating that farmers are willing to pay a premium for a dependable product. On the financial side, Syngenta accounted for 32.64 per cent (₹14,50,724.00 out of ₹44,44,146.24) of the total crop-protection budget across the sampled talukas, with adoption highest in Wani (35.62%) and lowest in Maregaon (18.94%). Across input categories, Syngenta commanded an exceptionally strong 82.38 per cent share in plant growth regulators, followed by fungicides (31.84%) and insecticides (26.50%), while its herbicide share remained comparatively low at 15.02 per cent, pointing to considerable scope for expansion in weed management.

Keywords: Agrochemicals, cotton, expenditure share, farmer perception, factor influencing, Syngenta, Yavatmal District

Introduction

Crop protection chemicals — insecticides, fungicides, herbicides and plant growth regulators — form a core input in Cotton cultivation, safeguarding yield against the bollworm complex, sucking pests and fungal disease. Syngenta India Private Limited, the Indian arm of the Switzerland-headquartered Syngenta Group, is a leading player in India's crop protection market, offering a wide Cotton portfolio spanning insecticides (Alik, Ampligo, Plesiva, Polo Zapp), herbicides (Touchdown, Clavengo), fungicides (Amistar Top, Miravis Duo, Score, Kavach Flo) and plant growth regulators (Cultar, Isabion, Quantis). Maharashtra grows more Cotton by area than any other state in India, and Yavatmal district, within the Vidarbha region, is one of the most closely watched Cotton belts in the country. Cotton growers here typically depend on a fragmented network of village-level dealers, informal peer advice and occasional extension contact, rather than on a single authoritative source of spray guidance, and a company's brand reputation and dealer relationships often weigh as heavily on the purchase decision as the product itself. Understanding how farmers perceive Syngenta's Cotton products and how much of their crop-protection budget the brand actually commands offers useful insight into brand performance and adoption patterns in this belt.

The present paper draws on the following two objectives of the wider study

1. To study farmers' perception for purchase of Syngenta products.
2. To Workout the percentage share of the Syngenta product in total expenditure by farmers.
3. To identify factors influencing purchase of Syngenta products.

Methodology

Area and Period of Study: The study was conducted in Yavatmal district of Maharashtra, covering three talukas — Maregaon, Wani and Zarijamni — with three villages selected in each taluka. Data pertain to the year 2025-26. Primary data were collected from 90 Cotton farmers (30 per taluka) through personal interviews using a structured schedule.

Farmers' perception: Farmers' perception of Syngenta products was, assessed on a five-point Likert scale (Strongly Disagree to Strongly Agree) across twelve parameters — price, quality, quantity, packaging, effectiveness, product information, market availability, expiry date, trust, use instructions, satisfaction and willingness to recommend — using the Likert Mean Preference Score:

$$\text{Likert Mean Preference Score} = \Sigma (f \times w) / N$$

Where, f = Frequency of each response, w = Weight assigned to the response, N = Total number of respondents.

Percentage share of Syngenta product in total expenditure: The share of Syngenta products in farmers' total crop protection expenditure was worked out separately for insecticides, herbicides, fungicides and plant growth regulators, using the formula:

Share percentage = [Expenditure on Syngenta products by farmer / (Expenditure on other products by farmer + Expenditure on Syngenta products by farmer)] × 100

Factors influencing purchase of Syngenta products: This was achieved by using Average method and Ranking method. Across the parameters on price, quality, quantity, link product, Brand Reputation & Trust, packaging, Marketing & Promotional Activities etc.

$$x = \frac{\sum x}{N}$$

Where, x = Mean Score, $\sum x$ = Total Score given by all respondent

N = Total number of respondent

Results and Discussion

Farmers' perception for purchase of Syngenta products

The results reveal that 'Available in market' was the most highly rated attribute, obtaining the highest mean score of 4.33 and securing Rank I; 87 of the 90 respondents either

agreed or strongly agreed, indicating that farmers place considerable importance on the timely and easy availability of Syngenta products during the cropping season. 'Quality' ranked second (mean score 4.10), followed closely by 'Effectiveness' (4.02, Rank III) and 'Trust Syngenta' (3.96, Rank IV), suggesting that product performance, consistency and brand credibility are the core drivers of farmers' positive perception.

'Packaging' (3.77) and 'Satisfied' (3.66) received moderately favourable ratings at Ranks V and VI, while 'Product information' (3.39, Rank VII) and 'Quantity' (3.26, Rank VIII) were rated somewhat lower, pointing to a section of farmers who rely more on dealer advice and prior field experience than on reading printed labels or considering pack-size options a distinct strength of the brand.

Label-related and post-purchase parameters — 'Use Instruction' (3.09, Rank IX), 'Recommend to other' (3.08, Rank X) and 'Expiry Date' (2.98, Rank XI) — close to the neutral midpoint, reflecting limited farmer engagement with printed instructions and some hesitation in actively promoting the brand to fellow growers despite an otherwise satisfactory experience. 'Price' recorded by far the lowest mean score of 1.89 and the lowest rank (XII); not a single respondent strongly agreed or agreed that the price was satisfactory, with 68 farmers disagreeing and 16 strongly disagreeing, indicating that price sensitivity is the single biggest source of dissatisfaction among Cotton growers with respect to Syngenta products, even as they rate its availability, quality and effectiveness highly.

Table 1: Farmers' Perception for Purchase of Syngenta Crop Protection Products

Parameter	SD	D	N	A	SA	Total Score	Mean Score	Rank
Available in market	0	1	2	53	34	390	4.33	I
Quality	0	0	2	77	11	369	4.10	II
Effectiveness	0	0	4	80	6	362	4.02	III
Trust Syngenta	0	1	12	67	10	356	3.96	IV
Packaging	0	0	24	63	3	339	3.77	V
Satisfied	0	4	23	63	0	329	3.66	VI
Product information	0	8	43	35	4	305	3.39	VII
Quantity	0	7	53	30	0	293	3.26	VIII
Use Instruction	0	22	38	30	0	278	3.09	IX
Recommend to other	9	26	40	15	0	277	3.08	X
Expiry Date	5	21	55	9	0	268	2.98	XI
Price	16	68	6	0	0	170	1.89	XII

Note: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Percentage share of Syngenta product in total expenditure by farmer

Expenditure on crop protection products constitutes a major part of a farmer's overall input budget during the cropping season. The share of Syngenta products in this expenditure, relative to all other agrochemical brands, was worked out separately for the three sampled talukas — Maregaon, Wani and Zarijamni — and then for Yavatmal district as a whole, across insecticides, herbicides, fungicides and plant growth regulators (PGR).

a. Maregaon Taluka: Among the 30 surveyed farmers in Maregaon taluka, total agrochemical expenditure stood

at ₹18,49,341.40, of which ₹3,50,355.00 was spent specifically on Syngenta products — a modest 18.94 per cent value share of the overall crop protection spend, the lowest among the three talukas. Category-wise, Syngenta performed strongest in fungicides, capturing 30.10 per cent of fungicide spending (₹1,25,980.00 out of ₹4,18,470.00). It secured a 16.80 per cent share in herbicides (₹69,300.00 out of ₹4,12,455.75), a 16.56 per cent share in insecticides (₹1,33,133.00 out of ₹8,04,018.65), and its lowest share in PGR at 10.23 per cent (₹21,942.00 out of ₹2,14,397.00), pointing to considerable room for growth across most input segments in this taluka.

Table 2(a): Distribution of Share of Syngenta Products in Total Expenditure by Farmers in Maregaon Taluka (₹)

Product Category	Total Expenditure on all Products by Farmers	Total Expenditure on Other Brand Products by Farmers	Total Expenditure on Syngenta Brand Products by Farmers	Share of Syngenta Products in Total Expenditure (%)
Insecticide	804018.65	670885.65	133133.00	16.56
Herbicide	412455.75	343155.75	69300.00	16.80
Fungicide	418470.00	292490.00	125980.00	30.10
PGR	214397.00	192455.00	21942.00	10.23
Total	1849341.40	1498986.40	350355.00	18.94

b. Wani Taluka: In Wani taluka, total agrochemical expenditure of the 30 surveyed farmers stood at ₹11,78,567.28, of which ₹4,19,862.00 was spent on Syngenta products, giving the brand a strong 35.62 per cent value share — the highest among the three talukas. Syngenta performed strongest in insecticides, capturing 45.85 per

cent of total spending (₹1,75,845.00 out of ₹3,83,509.78), followed by fungicides at 39.35 per cent (₹1,34,560.00 out of ₹3,41,984.00), PGR at 31.32 per cent (₹53,557.00 out of ₹1,70,982.00), and herbicides at 19.82 per cent (₹55,900.00 out of ₹2,82,091.50), highlighting Wani as the taluka with the strongest overall farmer preference for Syngenta.

Table 2(b): Distribution of Share of Syngenta Products in Total Expenditure by Farmers in Wani Taluka (₹)

Product Category	Total Expenditure on all Products by Farmers	Total Expenditure on Other Brand Products by Farmers	Total Expenditure on Syngenta Brand Products by Farmers	Share of Syngenta Products in Total Expenditure (%)
Insecticide	383509.78	207664.78	175845.00	45.85
Herbicide	282091.50	226191.50	55900.00	19.82
Fungicide	341984.00	207424.00	134560.00	39.35
PGR	170982.00	117425.00	53557.00	31.32
Total	1178567.28	758705.28	419862.00	35.62

c. Zarijamni Taluka: In Zarijamni taluka, the 30 surveyed farmers together spent ₹14,16,237.56 on crop protection chemicals, of which ₹2,94,954.00 was allocated specifically to Syngenta products, giving the brand a 20.83 per cent value share. Syngenta secured its highest share in insecticides at 27.83 per cent (₹1,21,126.00 out of ₹4,35,302.56), closely followed by

fungicides at 27.28 per cent (₹1,09,980.00 out of ₹4,03,102.00), while PGR stood at 14.02 per cent (₹29,448.00 out of ₹2,10,068.00) and herbicides recorded the lowest share at 9.35 per cent (₹34,400.00 out of ₹3,67,765.00), pointing to weaker herbicide adoption in this taluka.

Table 2(c): Distribution of Share of Syngenta Products in Total Expenditure by Farmers in Zarijamni Taluka (₹)

Product Category	Total Expenditure on all Products by Farmers	Total Expenditure on Other Brand Products by Farmers	Total Expenditure on Syngenta Brand Products by Farmers	Share of Syngenta Products in Total Expenditure (%)
Insecticide	435302.56	314176.56	121126.00	27.83
Herbicide	367765.00	333365.00	34400.00	9.35
Fungicide	403102.00	293122.00	109980.00	27.28
PGR	210068.00	180620.00	29448.00	14.02
Total	1416237.56	1121283.56	294954.00	20.83

d. Overall Yavatmal District: Pooling all 90 surveyed farmers across the three talukas, total seasonal expenditure on crop protection chemicals in Yavatmal district stood at ₹44,44,146.24, of which ₹14,50,724.00 was spent specifically on Syngenta products — a substantial 32.64 per cent value share at the district level. Across individual input categories, Syngenta achieved its strongest presence in plant growth regulators with an exceptional 82.38 per cent share (₹4,90,500.00 out of ₹5,95,447.00), followed by fungicides at 31.84 per cent (₹3,70,520.00 out of ₹11,63,556.00), insecticides at 26.50 per cent (₹4,30,104.00 out of ₹16,22,830.99), and herbicides at

15.02 per cent (₹1,59,600.00 out of ₹10,62,312.25).

Comparing across talukas, brand adoption was highest in Wani (35.62 per cent), followed by Zarijamni (20.83 per cent) and Maregaon (18.94 per cent). This pattern held broadly for insecticides and fungicides, where Wani recorded the highest Syngenta share, while Maregaon recorded the lowest share for insecticides, herbicides and PGR alike. Overall, these findings indicate strong district-wide adoption and brand equity for Syngenta, particularly in plant growth regulators and disease management, with herbicides representing the segment with the greatest scope for expanding market share across all three talukas.

Table 2(d): Distribution of Share of Syngenta Products in Total Expenditure by Farmers in Yavatmal District (Overall) (₹)

Product Category	Total Expenditure on all Products by Farmers	Total Expenditure on Other Brand Products by Farmers	Total Expenditure on Syngenta Brand Products by Farmers	Share of Syngenta Products in Total Expenditure (%)
Insecticide	1622830.99	1192726.99	430104.00	26.50
Herbicide	1062312.25	902712.25	159600.00	15.02
Fungicide	1163556.00	793036.00	370520.00	31.84
PGR	595447.00	104947.00	490500.00	82.38
Total	4444146.24	2993422.24	1450724.00	32.64

Factors influencing purchase of Syngenta products

The simple ranking analysis of the 90 farmer respondents shows that 'Quality' emerged as the most influential factor, obtaining the lowest (most favourable) average rank score of 1.18 and securing Rank I. As many as 74 farmers ranked quality as their first preference, while the remaining 16 placed it at Rank II, reflecting an overwhelming consensus that product quality is the single most decisive factor while purchasing crop protection products. 'Product Availability' followed at Rank II, with an average rank score of 2.10, indicating that once quality is assured, farmers place high importance on the product being readily accessible at the retail point. 'Brand Reputation and Trust' secured Rank III with an average rank score of 2.78, confirming that the brand's credibility and past field performance strongly reinforce farmers' confidence at the time of purchase. Among the moderately influential factors, 'Packaging and Labelling' was ranked fourth (5.16), suggesting a secondary

role compared to product performance and availability, while 'Linked Product' (Rank V, 5.42) showed a scattered response pattern, indicating that dependence on tied or linked input offers varies considerably across farmers. 'Marketing and Promotional Activity' (Rank VI, 5.72) and 'Quantity' (Rank VII, 5.82) reflected a comparatively limited role of advertisement and pack-size options once core attributes are satisfied. Finally, 'Price' recorded the highest average rank score of 7.82, placing it last at Rank VIII. A total of 74 out of the 90 respondents ranked price at the very bottom, while the remaining 16 placed it at Rank VII—not a single farmer considered price among the top-ranked factors. This establishes that, for the farmers surveyed, price is the least influential factor in the purchase decision when compared with quality, availability and brand trust, implying that farmers are willing to pay a premium for products they consider effective and dependable.

Table 3: Factors influencing purchase of Syngenta products

Sr. No	Parameter	Total Score	Mean Score (Avg. Rank)	Rank
1	Quality	106	1.18	I
2	Product Availability	189	2.10	II
3	Brand Reputation and Trust	250	2.78	III
4	Packaging and Labelling	464	5.16	IV
5	Linked product	488	5.42	V
6	Marketing and Promotional activity	515	5.72	VI
7	Quantity	524	5.82	VII
8	Price	704	7.82	VIII

Conclusions

The present study concluded that cotton growers in Yavatmal district had a generally favourable perception towards Syngenta crop protection products, particularly regarding market availability, quality, effectiveness and brand trust, while price received the lowest preference score. Quality emerged as the most important factor influencing farmers' purchase decisions, followed by product availability and brand reputation and trust, whereas price was ranked as the least influential factor. Syngenta products accounted for 32.64 per cent of the total crop protection expenditure of the sampled farmers, with the highest share recorded in Wani taluka (35.62%), followed by Zarijamni (20.83%) and Maregaon (18.94%). Among different product categories, Syngenta recorded the highest expenditure share in plant growth regulators (82.38%), followed by fungicides (31.84%) and insecticides (26.50%), while herbicides had the lowest share (15.02%). Overall, the findings indicate that product quality, effectiveness, availability and brand trust are the major strengths of Syngenta, while improvement in price perception and expansion of the herbicide segment may further strengthen its market position among cotton growers in Yavatmal district.

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