



ISSN Print: 2664-844X
ISSN Online: 2664-8458
NAAS Rating (2026): 4.97
IJAFS 2026; 8(9): 201-204
www.agriculturaljournals.com
Received: 22-06-2026
Accepted: 25-07-2026

CM Rawate
MBA (ABM) Student, School
of Agri-Business Management,
Nagpur, Maharashtra, India

Dr. SN Suryawanshi
Assistant Professor,
Agricultural Economics and
Statistics Section, College of
Agriculture, Nagpur,
Maharashtra, India

Dr. NV Shende
Associate Dean (Instruction) &
Head, Department of
Agricultural Economics and
Statistics, Dr. PDKV, Akola,
Maharashtra, India

Dr. SV Warade
Professor (CAS), School of
Agri-Business Management,
Nagpur, Maharashtra, India

Corresponding Author:
CM Rawate
MBA (ABM) Student, School
of Agri-Business Management,
Nagpur, Maharashtra, India

Determinants of farmers purchase and expenditure share of Mahadhan water soluble fertilizer in Yavatmal district

CM Rawate, SN Suryawanshi, NV Shende and SV Warade

DOI: <https://www.doi.org/10.33545/2664844X.2026.v8.i9c.1874>

Abstract

The present study entitled “Factors Influencing Purchase Decisions and Percentage Share of Mahadhan Water Soluble Fertilizer Products among Farmers in Yavatmal District” was conducted during 2025-26 to identify the factors influencing farmers’ purchase of Mahadhan water soluble fertilizer products and to work out the percentage share of Mahadhan products in the total expenditure incurred by farmers on water soluble fertilizers. The study was conducted in Umarkhed, Arni and Kalam talukas of Yavatmal district, Maharashtra, covering ninety selected farmers through a structured interview schedule. The factors influencing farmers’ purchasing power were analysed using multiple linear regression, purchase-decision factors were assessed on a five-point Likert scale, and the percentage share of Mahadhan in total WSF expenditure was estimated using the percentage method. The regression results revealed that income and price of fertilizer had a significant positive influence on purchasing power, while land holding had a significant negative influence, with the model explaining 98 percent of the variation ($R^2 = 0.98$); age and education were statistically non-significant. Among the purchase-decision factors, dealer influence (mean score 3.78) and brand reputation and trust (3.77) ranked highest, while marketing and promotional activity (3.24) ranked lowest. Farmers spent ₹1,78,370 on Mahadhan grades against ₹69,340 on other brands, out of a total expenditure of ₹2,47,710, giving Mahadhan a dominant 72.01 percent share of total water-soluble-fertilizer expenditure, with Grade 12:61:00 as the single largest contributor, accounting for 41.23 percent of Mahadhan’s own sales. The study suggests strengthening dealer networks, maintaining competitive pricing and undertaking targeted promotional efforts to further consolidate Mahadhan’s market position in the district.

Keywords: Mahadhan, water soluble fertilizer, purchase decision, regression analysis, percentage share, Yavatmal district

Introduction

Water soluble fertilizers dissolve completely in water and supply nutrients to crops in a readily available form, making them well suited to fertigation and foliar application. Their efficient nutrient absorption, precise dosing and adaptability to different crop growth stages have made them an increasingly important input in modern, high-value agriculture. Yavatmal district of the Vidarbha region in Maharashtra is a major cotton-and soybean-growing area where cropping patterns dominated by cotton, soybean, gram and wheat generate steady demand for balanced and efficient fertilizer application, including water soluble grades. Mahadhan Agritech Limited is one of the established brands supplying water soluble fertilizers to farmers in this region, competing with several other brands for farmers’ purchases. Since farmers’ purchase decisions are shaped by a combination of economic factors, such as income, price and land holding, and behavioural factors, such as dealer influence, brand trust and past experience, an understanding of what drives these decisions is valuable to the company, its dealers and extension agencies. Equally, knowing what proportion of farmers’ total spending on water soluble fertilizers is captured by Mahadhan, relative to competing brands, provides a direct measure of the brand’s market standing among the sampled farmers.

The study within specific objectives to identify the factors influencing purchase of Mahadhan water soluble fertilizer products by farmers in Yavatmal district and to work out the percentage share of Mahadhan water soluble fertilizer products in the total water soluble fertilizer expenditure of farmers.

Methodology

Study Area and Sampling Design

The present study was conducted in Yavatmal district of the Vidarbha region of Maharashtra, selected purposively based on the extent of use of water soluble fertilizers by farmers. Out of the sixteen talukas of the district, three talukas, viz., Umarkhed, Arni and Kalam, were selected. From each taluka, three villages were selected, and from each village ten farmers were selected randomly, making a total sample of 90 farmers; in addition. The study pertains to the year 2025-26. Primary data on farmers' purchase-influencing factors and their expenditure on Mahadhan and other-brand water soluble fertilizers were collected from the selected farmers through personal interview using a specially designed schedule.

Analytical Methods

Factors influencing purchasing power

The factors influencing farmers' purchasing power of Mahadhan water soluble fertilizers were analysed using a multiple linear regression model of the following form:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Where,

Y = Purchasing power of Mahadhan water soluble fertilizer

product (kg)

a = Intercept

$b_1 \dots b_5$ = Regression coefficients

X_1 = Income of farmer (Rs.)

X_2 = Price of fertilizer (Rs.)

X_3 = Land holding (ha)

X_4 = Age of farmer (years)

X_5 = Education of farmer (years of schooling).

Factors influencing purchase decision

The relative importance of product-related, economic and behavioural factors, namely dealer influence, brand reputation and trust, credit facilities, quality, past experience, and marketing and promotional activity, in farmers' purchase decisions was assessed using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). A mean score was computed for each factor and the factors were ranked accordingly, with a higher mean score indicating greater influence on the purchase decision.

Percentage share of Mahadhan WSF in total WSF expenditure

The percentage share of Mahadhan water soluble fertilizers in farmers' total expenditure on water soluble fertilizers was worked out using the percentage method:

$$\text{Percentage Share} = \frac{\text{expenditure on mahadhan water soluble fertilizer products}}{\text{total expenditure on water soluble fertilizers}} \times 100$$

Results and Discussion

Factors Influencing Purchasing Power of Mahadhan Water Soluble Fertilizer

The purchase of Mahadhan water soluble fertilizers is influenced by various socio-economic and product-related factors of farmers, including income, price, land holding, age and education. The results of the multiple regression analysis are presented in Table 1.

Table 1: Factors Influencing Purchasing Power of Mahadhan Water Soluble Fertilizer

Sr. No.	Particulars	Regression Coefficient
1	Intercept (a)	-3.46 (0.31)
2	Income (Rs.) (X_1)	0.24*** (0.06)
3	Price (Rs) (X_2)	1.01*** (0.02)
4	Land holding (ha) (X_3)	-0.14*** (0.04)
5	Age (year) (X_4)	-0.06 (0.05)
6	Education (year) (X_5)	0.03 (0.02)
	R^2	0.98

(Note: *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

(Figures in parentheses indicate the standard error)

Table 1 shows that the explanatory variables included in the model together explained 98 percent of the variation in

farmers' purchasing power of Mahadhan water soluble fertilizer ($R^2 = 0.98$), indicating a very high explanatory power of the fitted model. Income of farmer (X_1) and price of fertilizer (X_2) exhibited a positive and highly significant relationship with purchasing power (0.24 and 1.01, respectively, significant at 1% level), indicating that higher income and even higher-priced purchases were associated with greater purchase volumes, reflecting farmers' continued reliance on the product despite price levels. Land holding (X_3) showed a negative and significant relationship (-0.14, significant at 1% level), suggesting that farmers with larger holdings purchased comparatively less Mahadhan WSF per unit area, possibly due to a more diversified input-sourcing strategy. Age (X_4) and education (X_5) of farmer were statistically non-significant, indicating that these variables did not have a decisive influence on purchasing power in the study area. Overall, income, price and land holding emerged as the significant determinants of farmers' purchasing power of Mahadhan water soluble fertilizers. Patil & Gaikwad. 2022, analysis the similar result that is landholding size and fertilizer price significantly affected farmers' purchasing power.

Factors Influencing Purchase Decision of Mahadhan Water Soluble Fertilizer

In addition to purchasing power, farmers' purchase decisions are shaped by behavioural and marketing-related considerations. The results of the five-point Likert scale analysis of these factors are presented in Table 2.

Table 2: Factors Influencing Purchase Decision of Mahadhan Water Soluble Fertilizer

Sr. No.	Parameter	No. of Farmers	SA	A	N	D	SD	Total Score	Mean Score	Rank
1	Dealer influence	90	27	25	29	9	0	340	3.78	I
2	Brand Reputation and Trust	90	22	29	35	4	0	339	3.77	II
3	Credit facilities	90	20	26	36	7	1	327	3.63	III
4	Quality	90	22	23	29	16	0	321	3.57	IV
5	Past experience	90	16	33	27	10	4	317	3.52	V
6	Marketing and Promotional Activity	90	3	30	43	14	0	292	3.24	VI
	Average Mean Score								3.59	

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

Table 2 shows an overall positive inclination among the sampled farmers, reflected in an aggregate average mean score of 3.59. Dealer influence emerged as the most critical factor, with the highest mean score of 3.78 (Rank I), closely followed by brand reputation and trust with a mean score of 3.77 (Rank II), underscoring that interpersonal trust with local dealers and established brand credibility are the primary drivers of purchase behaviour. Credit facilities (3.63, Rank III), quality (3.57, Rank IV) and past experience (3.52, Rank V) also showed substantial positive influence, indicating that financial flexibility and consistent product performance support repeat purchases. Marketing and promotional activity ranked lowest (3.24, Rank VI), implying that conventional promotional efforts exert a comparatively weaker direct influence than personal relationships and brand equity. This suggests that strategic efforts to strengthen Mahadhan's market position should prioritise dealer-network relationships, credit support and product quality, while recalibrating promotional activity to better complement dealer-led outreach.

Percentage Share of Mahadhan Water Soluble Fertilizer in Total Water Soluble Fertilizer Expenditure:

The percentage share of Mahadhan in total WSF expenditure indicates the proportion of farmers' total spending on water soluble fertilizers that is captured by Mahadhan products relative to competing brands and was examined through the grade-wise and brand-wise expenditure of the selected farmers.

Table 3: Expenditure on Mahadhan Grade by Selected Farmers

Sr. No.	Mahadhan Grade	Cost (Rs.)	Percentage (%)
1	19:19:19	32190	18.05
2	12:61:00	73550	41.23
3	13:40:13	7030	3.94
4	00:52:34	10250	5.75
5	00:00:50	26140	14.65
6	9:27:18	29210	16.38
	Total	178370	100.00

Table 3 shows that the selected farmers incurred a total expenditure of ₹1,78,370 on Mahadhan grades. Grade 12:61:00 accounted for the highest expenditure, ₹73,550 (41.23%), followed by Grade 19:19:19 with ₹32,190 (18.05%) and Grade 9:27:18 with ₹29,210 (16.38%). Grade 00:00:50 accounted for ₹26,140 (14.65%) and Grade 00:52:34 for ₹10,250 (5.75%), while the lowest expenditure was recorded on Grade 13:40:13 at ₹7,030 (3.94%). Grade 12:61:00 was thus the major contributor to overall expenditure on Mahadhan products among the selected farmers.

Table 4: Expenditure on All Brand Grade by Selected Farmers

Sr. No.	All Brand Grade	Cost (Rs.)	Percentage (%)
1	19:19:19	44770	18.07
2	12:61:00	86510	34.92
3	13:40:13	7030	2.84
4	00:52:34	29490	11.91
5	00:00:50	50700	20.47
6	9:27:18	29210	11.79
	Total	247710	100.00

Table 4 presents the combined expenditure of the selected farmers across all brand grades, amounting to ₹2,47,710. Grade 12:61:00 accounted for the highest share, 34.92 percent (₹86,510), followed by Grade 00:00:50 at 20.47 percent (₹50,700) and Grade 19:19:19 at 18.07 percent (₹44,770). Together, Grades 12:61:00 and 00:00:50 accounted for 55.39 percent of the total expenditure, indicating that farmers' spending on water soluble fertilizers was concentrated in a few high-demand grades. Amaliyar & Singh. 2016, finding the similar results that is NPK (12:61:00) being most preferred grade.

Table 5: Percentage Share of Mahadhan Water Soluble Fertilizer in Total Water Soluble Fertilizer Expenditure

Sr. No.	Brand	Cost (Rs.)	Percentage (%)
1	Mahadhan	178370	72.01
2	Other Brand	69340	27.99
	Total	247710	100.00

Table 5 shows that, of the total expenditure of ₹2,47,710 incurred by the selected farmers on water soluble fertilizers, ₹1,78,370 (72.01%) was spent on Mahadhan and ₹69,340 (27.99%) on other brands. Mahadhan thus accounted for more than two-thirds of the farmers' total expenditure on water soluble fertilizers, confirming its dominant market position among the selected farmers of Yavatmal district and reflecting a marked preference for Mahadhan over competing brands.

Conclusion

The study revealed that income, price of fertilizer and land holding were the significant determinants of farmers' purchasing power of Mahadhan water soluble fertilizers, with the fitted regression model explaining 98 percent of the variation, while age and education did not exert a significant influence. Among the behavioural factors shaping the purchase decision, dealer influence and brand reputation and trust emerged as the strongest drivers, indicating that Mahadhan's market performance is largely relationship-and reputation-driven rather than campaign-driven, with marketing and promotional activity playing a comparatively smaller role. In terms of market standing, Mahadhan

captured a dominant 72.01 percent share of the selected farmers' total expenditure on water soluble fertilizers, with Grade 12:61:00 as its single largest contributor.

Strengthening dealer networks, ensuring competitive pricing, extending credit support and undertaking targeted promotional efforts, particularly to reinforce brand trust, would help Mahadhan Agritech Limited further consolidate and expand its market position among water-soluble-fertilizer users in Yavatmal district.

References

1. Amaliyar K, Singh R. A study on market potential, farmers' buying behaviour, and satisfaction level towards water soluble fertilizers in Anand and Narmada districts of Gujarat. *IMPACT: International Journal of Research in Business Management*. 2016;4(9):27-36.
2. Mahadhan Agritech Limited. Product portfolio: water-soluble fertilizers. 2026. Available from: <https://www.mahadhan.com>
3. Deshmukh RR, Ingole PR. Market performance of major fertilizer brands in the Vidarbha region of Maharashtra. *Journal of Agricultural Marketing and Rural Development*. 2019;12(2):45-52.
4. Ladumor DV, Pundir RS, Rajwadi A. Farmers purchasing behaviour and satisfaction towards fertilizer in Kheda district. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2023;41(9):149-154.
5. Patil S, Kshirsagar V. A study of buying behaviour of farmers towards solid fertilizers and water soluble fertilizers. *International Journal of Trend in Scientific Research and Development*. 2018;2(4):1184-1188.
6. Patil U, Gaikwad H. Farmers buying behaviour toward the fertilizers. *ASEAN Journal of Agriculture and Food Engineering*. 2022;1(1):29-36.
7. Rani KS, Shivalingaiah YN, Chigadolli M, Pujar SP. Factors influencing farmers preferences for water-soluble and specialty fertilizers in Karnataka: insights for sustainable agricultural practices. *International Journal of Advanced Biochemistry Research*. 2024;8(Special Issue 10):1321-1326.
8. Swathi S, Balaji R, Deepa N, Gangaiselvi R, Keisar L. Market potential and challenges of water-soluble fertilizer adoption in Theni district. *Plant Science Today*. 2024;11(Special Issue 4):1-6.
9. Vikash, Kumar A, Meena SS, Pal AB. Exploration of consumption status and satisfaction level of farmers towards water-soluble fertilizer in Morbi district of Gujarat. *International Journal of Research and Analytical Reviews*. 2024;11(1):447-455.