



Application of Agricultural Market Intelligence among Small Scale Farmers in Nagaon District of Assam, India

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This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Agricultural Market intelligence means market news and market information. For successful business or to develop agripreneurship farmers should make right decision about his business such as what and where and whom to sell and market intelligence provides all that information. Farmers are no longer just producers, they are becoming agripreneurs who must manage their farms like businesses. For this, they need to make critical decisions such as what to produce, where to sell, when to sell, and to whom to sell. Agricultural market intelligence provides the data and insights necessary to make these decisions effectively. For example, knowing which crops are in high demand in a particular season helps farmers choose the right crops to cultivate, thereby reducing the risk of losses due to oversupply or low market prices. The present study is conducted in Nagaon district of Assam with the help of purposive multistage random sampling method by covering 100 sample farmers where 50 nos. of users and 50 nos of nonuser of market intelligence along 30 numbers of wholesaler from Nagaon district with the help of Combined questionnaire and interview approach. Among users of market intelligence unavailability of technological accessibility problems rank 1st followed by Non availability of MI for all crops and not accessible to MI in needy times rank 2nd and 3rd problem respectively. It is seen that age, education, access to credit, access to extension functionaries and knowledge level had positive significance influence on market intelligence adoption. Again, size of family, size of farm and annual income has not correlated with market intelligence adoption. It is evident that age has shown negative correlation with market intelligence adoption meant that younger generation is likely to use market intelligence for their decision making in agricultural activities.

Keywords: *Farming system; income; employment; production problem; marketing problem; agricultural marketing intelligence.*

1. INTRODUCTION

Systematic collection of market news, price-related information, and demand and supply analysis is called Agricultural Market Intelligence. In today's agriculture, it acts as a catalyst for the developed economy, helping rural communities and agripreneurs make strategic business decisions. Access to timely and accurate market information is crucial in today's competitive agricultural environment. Balarane & Oladele (2012) examined the awareness and use of agricultural market information among small-scale farmers in the Ngaka Modiri Molema District in the North West Province (Balarane & Oladele, 2012). Their study shows that decisions on what to produce and whom to sell to are key and determined by agricultural market information from various outlets, such as fruit and vegetable markets. Farmers are no longer just producers; they are becoming agripreneurs who must manage their farms like businesses. Knowing which crops are in high demand during a particular season helps farmers decide the right crops to cultivate, reducing the risk of losses due to oversupply or low market prices. Furthermore, agricultural market intelligence includes knowledge of consumer preferences, competitor activities, weather forecasts, and government support programs (Dodds et al., 2014, Quick et al., 2022). This information

enables farmers to adjust their production and marketing strategies accordingly. If there is a rising demand for organic produce, market intelligence can guide farmers to shift towards organic farming and access premium markets. Additionally, access to such intelligence promotes transparency in the agricultural supply chain, reduces the influence of middlemen, and empowers farmers to negotiate better prices. It also supports agripreneurs in planning investments, diversifying products, and adopting innovative marketing methods like direct marketing, contract farming, and digital platforms (Dahiya & Khandare, 2025). In conclusion, agricultural market intelligence is not just about collecting market news; it's about turning data into actionable knowledge. For any farmer or agripreneur aiming for long-term success, market intelligence is an essential tool. It bridges the gap between production and market demand, enabling better planning, smarter decision-making, and improved profitability. Dsouza et al. (2024) noted that market intelligence is affected by several factors, including the framework, model, and communication needed for effective marketing planning (Singh et al., 2016).

Knowledge in Market Intelligence is very important for farmers who struggle to break even cost of agricultural crops which usually ignored by farmers. Similarly, understanding market price

trends allows farmers to determine the best time to sell their produce to maximize profits. Information about nearby markets, distant urban centers, or even international markets helps them find the most profitable places to sell. Market trend, demand for particular crop, cost of inputs and preference of buyers are provided timely with the help of market intelligence. Farmers can be able to plan what and how much crop they can grow and where to sell to get maximum return which also give concrete idea about break even cost of agricultural crops. Loss incurred from market saturation can be minimized with the help of proper market intelligence knowledge by bridging the gap between demand and supply. Market Intelligence is necessary for each and every farmer in agrarian economy.

2. MATERIALS AND METHOD

The present study is conducted in Nagaon district of Assam with the help of purposive random multistage sampling method by covering 100 sample farmers where 50nos. of users and 50 nos. of nonuser of market intelligence along 30 numbers of wholesaler from Nagaon district. Nagaon district is the 1st stage, block is the 2nd stage, village is 3rd stage and users of market

intelligence is the 4nd and ultimate stage of unit. Stage. Again, wholesalers are selected under registered list of Agricultural Market Intelligence Unit at Krishi Vigyan Kendra, Nagaon. Market intelligence means market news of agricultural commodities along with market information available to farmers. Combined questionnaire and interview approach was done with the Participatory Rural Appraisal and Rapid Rural Appraisal method. Tabular, per cent and correlation was done to check Association between the independent variable and market intelligence adoption.

3. RESULTS AND DISCUSSION

Table 1 revealed the percentage change of economic parameters of market intelligence users and found that employment was increased by 15% and average income was increased by 22.50 per cent. From the result we can conclude that there are possibilities of employment generation through market intelligence. Saving and consumption expenditure had increased by 15.25 and 20.90 per cent. From that result we can conclude that though market intelligence has no impact on asset creation but significantly impact on savings and consumption which is very necessary in macro-economic development.

Table 1. Economic indicators of sample households during Pre and Post MI use period

Particulars	Percent increase
Employment Total (man days)	15.00
Average Income Total	22.50
New Assets Total	Nil
Savings Total	15.25
Consumption expenditure	20.90

Table 2. Problems faced by users and non-users of MI information

Problems faced	Mean score	Rank
MI Users		
Marketwise detailed information is not available	1.7	V
Technological accessibility problems	2.8	I
Not accessible to MI in needy times	2.2	III
Non availability of MI for all crops	2.5	II
Not available of MI in right time	2.1	IV
Others	1.3	VI
MI Non-Users		
Lack of training	2.1	V
Lack of formal education	1.8	VI
Unawareness	3.2	I
Produce is too little	2.9	III
Not accessible	2.4	IV
Convenient in selling at Village itself	3.1	II
others	1.1	VII

Table 3. Association between the independent variable and market intelligence adoption

SI No	Independent variable	Correlation-Coefficient (r)
1	Age	-.3245* *
2	Education	.4278* *
3	Family Size	0.0775 (NS)
4	Access to credit	.3421* *
5	Land holding	0.0342 (NS)
6	Access to Extension functionaries	.5987* *
7	Annual Income	0.08978 (NS)
8	Level of knowledge	.3980 * *

* = significant at 0.05 level, ** = significant at 0.01 level and NS = non-significant

Table 2 revealed different problems faced by Users and Non-Users of MI Information and categorized. Among users of market intelligence unavailable of technological accessibility problems rank 1st followed by Non-availability of MI for all crops and not accessible to MI in needy times rank 2nd and 3rd problem respectively. Again, in case of non ser group unawareness is the main problems among farmers followed by Convenient in selling at Village itself and little production respectively.

Table 3 describes association between market intelligence adoption and independent variable. The different independent variable which affect the market intelligence adoption are age, education, family size, access to credit, land holding, access to extension functionaries, annual income and level of knowledge. It is seen that age, education, access to credit, access to extension functionaries and knowledge level had positive significance influence at correlation coefficient value (r) of 0.4278 ,0.4278, 0.5987 and 0.3980 respectively on market intelligence adoption. As per informed decision is concern Market intelligence adoption is a vital aspect of modern agricultural practices for optimum allocation of resources. Use available data, digital tools, and information platforms and upto the extent to which individuals or households to guide agricultural marketing, pricing, crop planning, and sales strategies are called market intelligence. Various independent variables can influence this adoption behaviour, such as age, education, family size, access to credit, landholding size, access to extension services, annual income, and level of knowledge. Depending on socio economic characteristics in degree and direction. Positive and negative significance are analysed by research findings. The variables found to have a positive and significant influence on market intelligence adoption are education, access to credit, access to extension functionaries, and level of

knowledge. Each of these factors contributes to a higher likelihood of adopting market intelligence tools and practices, albeit to different extents. The correlation coefficient values—0.4278 for education, 0.5987 for access to credit, and 0.3980 for access to extension services—indicate moderate to strong positive relationships. This suggests that individuals who are more educated, have better access to financial resources, are regularly engaged with agricultural extension workers, or possess a higher level of knowledge are more inclined to use market intelligence in their agricultural decision-making. Education plays a crucial role in enhancing the digital literacy and awareness of farmers. Individuals with higher educational are generally more equipped to improved technologies and are better convergence to understand and interpret market information. ICT tools are adopted by educated people mostly. These tools are essential in accessing market data, price trends, demand forecasts, and agricultural news, which are the cornerstones of market intelligence. As expected that education and market intelligence adoption have positive significant correlation. Educated individuals are also more proactive in seeking out new information, experimenting with innovative techniques, and adapting to changing market conditions, making them more receptive to adopting intelligence tools.

Market intelligence adoption is also affected by access to credit. Farmers with access to credit meant bigger financial flexibility, access them to invest in advanced farming tools, smartphones, internet services, or platform where market information and news are provided. A correlation coefficient of 0.5987 meant that strong positive relationship, with the importance of financial need in enabling in agriculture in decision making system in technology enhancement. Agriculture Extension wing acts as bridge between research and farming community. Extension workers

provide training, disseminate market information, demonstrate technology use, and assist farmers in understanding complex market dynamics. Their presence helps to accelerate the market intelligence adoption among farmers, making it more accessible to farmers, especially in case of digitally illiterate farmers it plays an important role. The positive correlation suggests that farmers who interact regularly with extension services are more likely to adopt market intelligence tools, as extension workers are the primary source of technology dissemination. The level of knowledge, particularly related to agriculture and allied sector and market mechanisms, also shows a positive relationship with market intelligence adoption. Knowledgeable farmers are more likely to understand the importance of timely and accurate market information. Interestingly, some variables traditionally believed to influence agricultural behavior do not show a significant correlation with market intelligence adoption in the current study. These include family size, landholding size (farm size), and annual income among the farming community. The lack of correlation meant that these factors do not inherently affect whether a household adopts market intelligence practices. For family size, the assumption might not be that larger families provide more labor or have greater needs for structured decision-making. There is no link between these parameters. This may be because adoption of market intelligence is an individual or small-team decision, often dependent on the key decision-maker's knowledge and digital literacy rather than the number of people in the household. Again, adoption is not influenced by size of holding. Usually we assume that larger farms, which typically have rich in resources and require more complicated management, would benefit more from market intelligence tools, the adoption still hinges more on the farmer's willingness and ability to engage with these tools rather than farm size alone. In case small farmers access to mobile or smart phone plays an important role for technology dissemination among the farming community. In most of the cases, small farmers avoid loss and they choose to use market intelligence because they do not want inefficiencies or losses in their agriculture process, which enable them more careful in decision making step about marketing.

There is no significant correlation with annual income and market intelligence adoption. Although this is questionable if we see then as

higher income often affect to technology adoption. But in this case of market intelligence adoption income alone is not influencing factor. This might be due to cause of low cost in technical accessibility of advanced information technology assessment through mobile or other device. Therefore, while income makes enable the farmer to buy smartphones or internet subscriptions, but it does not always mean that to actual usage of market intelligence tools among the farming community. Age also plays a complex role in market intelligence adoption in the study area. but usually experience of farming is correlated with age and but it has shown a negative correlation with market intelligence adoption in this case. This suggests that less aged farmers are more likely to adopt and utilize market intelligence tools compared to aged farmers. As we have seen that Younger generations are more comfortable with technology, have better education, and easily equipped with to innovation among the farming community in the study area. They are also more likely to use smartphones, social media, and apps that provide real-time market data. Older farmers, on the other hand, might not be able for adopting new technologies due to lack of exposure, illiteracy, or a preference for traditional methods. In decades, many aged farmers have successfully managed their farms without market intelligence tools, and may not see the need to change, particularly if the benefits of market intelligence are not immediately visible or well-communicated to them. Lower level of digital literacy among the aged farmers might be consider as low adoption of market intelligence among the farming community. The digital literacy, therefore, plays a vital role among the aged people in market intelligence adoption. Younger farmers as obvious having grown up with technology, often they use it and efficiently, making them the primary adopters of such tools which leads to more market intelligence adoption in the study area. Therefore, knowledge, education, access to information, and financial inclusion affect the adoption of market intelligence in agriculture. digital literacy is enhanced by Education, technology investments is enabled by credit access, extension services enhance knowledge adoption, and understanding is deepened by knowledge. Different socio-economic parameters such as family size, income, and landholding do not show a meaningful impact, highlighting the shift from resource-based to knowledge-based decision-making in agriculture. Singh et al (2016) revealed that adoption of market intelligence and the age

of the cabbage growers had negative and highly significant correlation (- 0.23403**) (Martey, 2014) Martey in his study reported that extent of commercialization were affected by age, gender education, farm size, access to land and non-farm income (Barman et al., 2019). Barman et al. (2019) also revealed that showed that the younger generation means low aged group of farmers favoured the farm mechanization showing positive significant relationship with farm mechanization adoption (Paul & Verma, 2024).

4. CONCLUSION

The unawareness among farming community and technical constraints is the main problem for farming community for adoption of marketing intelligence for further economic improvement. In order to curb these problems proper training should be given to the farming community so that farmers become aware about market functioning. Angles and Chinnadurai stated market intelligence Training in market intelligence to farming community will empower the farmers to make proper decision in agricultural activities (Angles & Chinnadurai, 2018). It is essential for farmers. Farmers profit may be increased through information on market intelligence needing for intensive initiatives in the research and investment in the market intelligence aspects to help farming community. To increase profit training of market intelligence plays an important role for farmers. Ahmed et al. (2007) conducted study at Peshawar and Charsadda district and revealed that poor interaction farmers and extension workers interaction for market related information where radio and TV were the important tools for information dissemination. About different agricultural problem with the help of radio and farmer got information about marketing information (Khan et al., 2007).

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

We hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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