Attitude of Aromatic Rice Farmerstowards Good Agricultural Practices in Dinajpur, Bangladesh

Abstract

This study investigatedaromatic rice farmers' attitude towards Good Agricultural Practices (GAPs) in Dinajpur, Bangladesh, aiming to fill a gap in the literature regarding GAPs adoption in the country's rice cultivation sector. Employing a mixed-methods approach, the study utilized a descriptive and diagnostic research design. The sample size consisted of 90 aromatic rice farmers selected through multistage disproportionate random sampling technique. Data were collected through face to face interviews using structured interview schedule, incorporating both open and closed-ended questions. Attitude towards GAPs were assessed using a scale comprising 16 statements on a five-point Likert-type scale. The major findings indicate a predominantly 54.4% respondents possessed positive attitude towards GAPs, with education and extension contact significantly influencing theirattitude. Challenges such as cost and accessibility may hinder GAPs adoption, highlighting the need for targeted interventions. The study underscores the importance of educational and extension programs in promoting sustainable practices and calls for addressing barriers to GAPs adoption to enhance agricultural sustainability and farmers' livelihoods.

Keywords: Aromatic rice; Good Agricultural Practices (GAPs); Farmers' attitude; Sustainable agriculture; Bangladesh

1. Introduction

Agriculture is the backbone of Bangladesh's economy, employing a significant portion of its population and contributing substantially to its GDP [1]. Among the various crops cultivated in the country, rice holds a predominant position, serving as a staple food for the majority of its population. Within the diverse array of rice varieties grown in Bangladesh, aromatic rice stands out for its unique fragrance and flavor,

commanding premium prices in both domestic and international markets [2]. The cultivation of aromatic rice, often referred to as "fine rice" or "fragrant rice," has deep-rooted cultural significance in Bangladesh, with certain varieties like *Kalijira* and *Chinigura* being highly prized for their sensory attributes [3].

In recent years, the demand for aromatic rice has been on the rise, driven by changing consumer preferences and increasing disposable incomes [4]. This trend has created new opportunities for farmers engaged in aromatic rice cultivation, incentivizing them to adopt innovative farming practices to enhance productivity and quality. Good Agricultural Practices (GAPs) have emerged as a critical framework for promoting sustainable agriculture and ensuring food safety and quality [5]. GAPs encompass a range of techniques and approaches aimed at optimizing resource use, minimizing environmental impacts, and producing safe and high-quality agricultural products [6].

The adoption of GAPs in aromatic rice cultivation is particularly crucial given the crop's premium status and the stringent quality standards imposed by domestic and international markets [7]. Understanding farmers' attitudes towards GAPs is essential for designing effective extension programs, policy interventions, and market strategies aimed at promoting sustainable agricultural practices and enhancing the competitiveness of aromatic rice production.

The adoption of GAPs in agricultural production is influenced by a myriad of factors, including socio-economic characteristics, institutional support, market dynamics, and environmental conditions [8]. Studies conducted in other agricultural contexts have highlighted the role of education, training, and extension services in shaping farmers' perceptions and behaviors towards GAPs [9-18]. Furthermore, farmers' age, experience, access to resources, and participation in farmers' organizations have been found to be significant determinants of GAPs adoption [19]. However, the extent to which aromatic rice farmers in Bangladesh embrace GAPs and the factors influencing their attitude in adoption decisions remain relatively understudied.

This study seeks to address this gap in the literature by examining aromatic rice farmers' attitudes towards GAPs in Dinajpur, Bangladesh. Dinajpur, located in the northern part of Bangladesh, is renowned for its fertile agricultural lands and extensive rice cultivation. The region's conducive agro-climatic conditions make it an ideal location for aromatic rice production, with farmers predominantly engaged in

growing varieties such as *Chinigura*, and *Kalijira*[20]. By focusing on Dinajpur, this study aims to provide insights that are representative of the broader aromatic rice farming landscape in Bangladesh.Drawing on insights from previous research, this study seeks to explore the following research questions:

i) What are the socio-economic characteristics of aromatic rice farmers in Dinajpur?
ii) What is the level of attitude of the aromatic rice farmers of the study area towards GAPs? and
iii) How do thesocio-economic characteristics of the respondents influence their attitudes towards GAPs?

The findings of this study are expected to contribute to both academic knowledge and practical interventions aimed at promoting sustainable agricultural practices and enhancing the livelihoods of aromatic rice farmers in Bangladesh. By identifying the key drivers of farmers' attitude towards GAPs, policymakers, extension agencies, and other stakeholders can formulate targeted strategies to support farmers in developing positive attitude towards GAP and transitioning towards more sustainable and resilient farming systems.

2. Methodology

2.1 Locale of the Study

The study was conducted in Dinajpur district of Bangladesh taking Dinajpur Sadar and Chirirbandar upazila as specific study location. The reasons behind the selection of Dinajpur Sadar and Chirirbandar upazila as specific study location were easy communication facilities, easy contact with the farmers, extensive involvement of the farmers in aromatic rice farming and easy accessibility of the researcher to this area.

2.2 Population and Sampling Technique

All the aromatic rice growers of the study area were the population of the study. Among the population 90 aromatic rice farmers were selected as the sample for the study following multistage disproportionate random sampling approach [21,22].

Figure 1. Location map of the study area

2.3 Instruments for Data Collection

An interview schedule was prepared in order to collect relevant data from the respondents keeping the objectives of the study in mind. Both open and closed form questions were used in the questionnaire. Before beginning final data collection, the interview schedule was pre-tested and finalized following required question additions, deletions, and modifications.

2.4 Measurement of Attitude

Aromatic rice farmers' attitude towards GAPs were measured on a attitude scale consisting of 16 statements including both positive and negative to avoid the biases of the respondents. Each respondent was asked to indicate his/her extent of agreement or disagreement against each of the statements along a 5-point scale i.e. a score of 5, 4, 3, 2 and 1 was given for strongly agree, agree, no opinion, disagree and strongly disagree, respectively[23]. Thus, the attitude score varied from 16 to 80 where 16

indicates very unfavorable attitude towards GAP practices and 80 indicates highly favorable attitude towards GAP practices.

2.5 Processing and Analysis of Data

All the collected data were entered into the computer for analysis and interpretation using the SPSS 26 computer program. For exploring relationships between dependent and independent variables, Pearson's Coefficient of Correlation (r) test was employed. In order to describe and explain the data, descriptive statistical metrics including range number, mean, percentage distribution, and standard deviation were used.

3. Results

3.1 Socio-economic profile of the respondents

Table 1 presents comprehensive descriptive statistics on the socio-economic characteristics of aromatic rice farmers, offering valuable insights into the diverse profiles of farmers and how these factors may influence their attitudes towards Good Agricultural Practices (GAPs). The parameters included in the table encompass various dimensions, including age, family size, education level, farming experience, farm size, annual income, training experience, extension contact, and organizational participation.

Table 1. Descriptive Statistics on Socio-economic characteristics of the respondents

Parameter	Unit	Minimum	Maximum	Mean	Std. Deviation
Age	Year	28.00	71.00	51.10	10.67
Family size	Number	2.00	12.00	5.38	1.76
Education	Years	.00	16.00	5.45	4.18
Farming Experience	Years	8.00	54.00	25.73	9.93
Farm Size	Hectare	.04	8.56	0.72	0.96
Annual Income	BDT ('000)	70.00	782.00	291.20	166.79
Training experience	Score	.00	9.00	2.97	2.48
Extension Contact	Score	7.00	26.00	15.71	3.93
Organizational participation	Score	.00	5.00	1.67	1.34

The age distribution of the respondents reveals a range from 28 to 71 years, indicating a mix of older and younger farmers within the sample. This diversity in age reflects the generational differences in farming practices and attitudes towards innovation. Among the respondents, the mean age is 51.10 years, with a standard deviation of 10.67, highlighting the variance in age distribution and the potential influence of generational factors on GAP adoption.

Family size, an important socio-economic indicator, varies significantly among respondents, with the mean family size recorded at 5.38 members per household. The range extends from 2 to 12 members, reflecting the diversity of household compositions and the differential impact of family dynamics on farming decisions. Larger families may face distinct economic and social challenges compared to smaller households, affecting their capacity to invest in new agricultural technologies such as GAPs.

Education level is another crucial determinant of farmers' attitudes towards GAPs, with respondents having completed an average of 5.45 years of formal education. The range of educational attainment spans from no formal education to 16 years of schooling, indicating considerable variation in literacy and numeracy skills among farmers. Higher levels of education are often associated with increased access to information, critical thinking abilities, and receptiveness to new ideas, potentially influencing farmers' willingness to adopt GAPs.

Farming experience, measured in years, provides insights into the level of expertise and accumulated knowledge among respondents. The mean farming experience is recorded at 25.73 years, indicating a significant level of practical knowledge and skill acquisition among the surveyed farmers. However, the range extends from 8 to 54 years, reflecting both seasoned veterans and relatively novice farmers within the sample, each with unique perspectives on agricultural innovation and risk management.

Farm size, expressed in hectares, varies considerably among respondents, with an average farm size of 0.72 hectares. The range extends from 0.04 to 8.56 hectares, reflecting the prevalence of smallholder farming systems in the study area. Small farms are often characterized by limited resource endowment and land constraints, posing challenges to the adoption of resource-intensive practices such as GAPs.

However, small farms can also benefit from targeted support interventions tailored to their specific needs and constraints.

Annual income, measured in Bangladeshi Taka (BDT) thousands, provides insights into the economic well-being of farmers and their capacity to invest in agricultural innovations. The mean annual income is recorded at 291.20 BDT thousands, with a standard deviation of 166.79, indicating considerable variability in income levels among respondents. Higher income levels may facilitate greater investment in GAP adoption, while lower-income households may face financial constraints that impede technology uptake.

Training experience, extension contact, and organizational participation are additional dimensions that shape farmers' attitudes towards GAPs. Respondents reported an average training experience score of 2.97, reflecting their exposure to various capacity-building initiatives and extension services. Similarly, the average extension contact score is recorded at 15.71, indicating the frequency and quality of interactions with agricultural extension agents. Organizational participation, measured as a score, reflects farmers' engagement in collective action and knowledge-sharing through agricultural associations or cooperatives.

3.2 Attitude towards GAPs in Aromatic Rice Cultivation

The observed attitude scores related to GAPs in aromatic rice cultivation ranged from 34 to 59, with a mean score of 51.10 and a standard deviation of 4.36. These scores were then categorized into three groups, as detailed in Table 2.

Table 2. Distribution of the respondents according to their attitude towards GAPs

Category	**Score**	**Observed range**	**Respondents**		**Mean**	**SD**
			Frequency	**Percent**		
Unfavorable attitude	<45	34-59	5	5.6	51.10	4.36
Moderately positive attitude	45-50		36	40.0		
Highly positive attitude	>50		49	54.4		
Total			90	100		

Data in Table 2 shows that a significant proportion of respondents, specifically 54.4 percent, demonstrated a highly positive attitude and 40 percent showed moderately positive attitude towards the adoption of GAPs in aromatic rice cultivation. This indicates that a substantial number of farmers hold positive attitudes and are receptive

to the principles and practices associated with GAPs. In contrast, a relatively smaller fraction, just 5.6 percent of respondents, exhibited a negative or unfavorable attitude regarding GAPs in aromatic rice cultivation.

The majority of the surveyed population, comprising 94.4 percent of respondents, fell within the category of medium to high attitude towards GAPs in aromatic rice cultivation. This suggests that there is a prevalent positive disposition among the respondents towards the adoption and implementation of Good Agricultural Practices in their rice cultivation endeavors.

The observation that 56.7 percent of the surveyed respondents find GAPs challenging to practice offers critical insights into the practical aspects of implementing these practices (Table 3). The substantial index value of 345 highlights the significance of this finding. It indicates that a substantial portion of the surveyed population faces difficulties when it comes to implementing or adhering to GAPs in the agricultural sector. This observation suggests that the adoption of Good Agricultural Practices might present various complexities and challenges to farmers. It's notable that over half of the respondents, comprising 56.7 percent, have encountered difficulties with GAPs. These challenges may signify that Good Agricultural Practices encompass a range of rules, processes, and protocols that could be perceived as complex or demanding. Some farmers may find it challenging to comprehend and effectively implement these practices. This underlines the pressing need for improved training and educational programs within the agricultural community to enhance the knowledge and skills of farmers in practicing GAPs effectively. Furthermore, this finding implies that there is room for improvement in providing farmers with the necessary knowledge and skills to implement GAPs. If a significant proportion of respondents are struggling with GAPs, it emphasizes the importance of targeted efforts to bridge this knowledge gap and facilitate smoother adoption. Resource constraints may also contribute to the perception of GAPs as challenging. The implementation of GAPs often involves investments in equipment, technology, and infrastructure. These requirements may not be equally accessible to all farmers, potentially hindering their ability to embrace these practices fully.

Table 3. Rank order of respondents' attitude towards GAPs in aromatic rice cultivation

SL	Constructs	Level of Agreement (% Respondents)					Index	Rank
		SDA	DA	NO	A	SA		
1.	Extension advice on GAPs is necessary	8.9	8.9	17.8	30.0	34.4	335	2nd
2.	GAPs increase rice yield	3.3	20.0	18.9	36.7	00	317	5th
3.	GAPs enhance growth and development of crops	00	28.9	17.8	31.2	21.1	311	8th
4.	GAPs do not have a significant effect on crops	4.4	17.8	35.6	32.2	10.0	293	9th
5.	GAPs may require adjustments for individual farming conditions and may lead overall reduction of yield	34.4	38.9	23.3	3.3	00	176	16th
6.	GAPs involve certain costs but offer long-term benefits	22.2	24.4	4.4	36.7	12.2	263	13th
7.	GAPs require proper training and education to implement	1.1	4.4	21.1	56.7	16.7	345	1st
8.	GAPs are affordable and easily accessible	16.7	44.4	20.0	17.8	1.1	218	15th
9.	GAPs are important for the benefit of future generations	1.1	6.7	35.6	43.3	13.3	325	3rd
10.	GAPs help improve soil health	00	20.0	13.3	56.7	10.0	321	4th
11.	GAPs improve water holding capacity of soil	1.1	17.8	17.8	57.8	5.6	314	7th
12.	GAPs have reduced irrigation water requirement	3.3	13.3	43.3	40.0	00	288	10th
13.	GAPs aid in controlling pests and diseases	13.3	43.3	25.6	17.8	00	223	14th
14.	GAPs ensure optimum gain from farming	00	3.3	42.2	53.3	1.1	317	6th
15.	GAPs maintain the moisture required by crops	3.3	12.2	57.8	23.3	3.3	280	11th
16.	GAPs are adaptable to different cultivation practices	3.3	14.4	53.3	28.9	00	277	12th

SDA= strongly disagree, DA = disagree, NO= neither agree nor disagree, A= agree, and SA = strongly agree.

Farmers' attitudes towards Good Agricultural Practices (GAPs) are pivotal for the betterment of future generations and the sustainable development of agriculture, as indicated by the third-place ranking with an index value of 325. This perspective resonates with 43.3 percent of farmers who firmly believe that GAPsfosters the responsible utilization of vital natural resources, encompassing soil, water, and air. Through the adoption of sustainable farming methods, GAPs ensure the availability of these resources for generations to come. By mitigating soil erosion, averting water depletion, and curbing pollution, GAPs become a linchpin in promoting environmental health. Additionally, the endorsement of sustainable agricultural

practices, often encouraged by GAPs, carries substantial benefits, including the preservation of biodiversity and the nurturing of diverse ecosystems in and around farms. The significance of these ecosystems extends beyond environmental well-being; they are also essential for future food security. By providing critical ecosystem services such as pollination and pest control, they contribute to the productivity of agriculture.

In recognizing that agriculture both influences and is influenced by climate change, those who champion GAPs acknowledge its role in climate change mitigation. By diminishing greenhouse gas emissions and sequestering carbon in the soil, GAPs offer a pathway to address the ramifications of climate change. Furthermore, the emphasis on teaching and promoting GAPs point to its potential for knowledge transfer, a vital component in maintaining and improving sustainable agricultural practices across generations. In essence, the wisdom embedded in GAPsare the invaluable resources for the perpetuation of environmentally conscious and productive agriculture.

The role of GAPs in enhancing soil health is a prevailing sentiment among farmers, with 56.7 percent concurring that it contributes significantly to soil improvement. By guarding against erosion, fostering soil organic matter, maintaining nutrient balance, and protecting soil-dwelling organisms, GAPs emerge as a catalyst for sustainable agricultural practices. Its broader impact extends to long-term agricultural sustainability and productivity, all while upholding environmental integrity. Additionally, statement 5 in Table 3 underscores respondents' concern about the need for customization and adaptation in GAP implementation. Besides, it also underscores a significant viewpoint among farmers, with 38.9 percent rejecting the idea that GAPs lead to reduced crop yields. This perspective is indicative of the positive perception that many farmers hold towards GAPs, viewing it as a viable and sustainable approach to farming that does not compromise crop cultivation.

Conversely, half of the surveyed farmers (44.4%) express dissent concerning the affordability and accessibility of GAPs. This dissent underscores the existence of substantial barriers to the widespread adoption of these practices. These barriers may encompass high initial costs, a lack of access to quality inputs, and insufficiencies in training and education. Addressing these challenges is paramount in facilitating broader access to GAPs practices within the agricultural community and reaping their benefits for both farmers and future generations.

3.3 Relationship between farmers' socio-economic characteristics and their attitude towards GAPs

The correlation table (Table 4) presents the relationships between farmers' socio-economic characteristics and their attitude towards Good Agricultural Practices (GAPs) in aromatic rice cultivation. The correlation coefficients (r) indicate the strength and direction of the relationships between independent variables (such as age, education, farming experience, etc.) and the dependent variable (attitude towards GAPs).

Table 4. Relationships between farmers' socio-economic characteristics and their attitude towards GAPs in aromatic rice cultivation

Independent variable	Dependent variable	Co-efficient of correlation (r)
Age	Attitude towards GAPs	-0.044
Education		.656**
Farming experience		-0.069
Farm size		0.046
Annual Income		-0.049
Training experience		0.001
Extension contact		.565**
Organizational participation		-0.038

Age shows a weak negative correlation (-0.044) with attitude towards GAPs, suggesting that older farmers tend to have slightly less favorable attitudes towards adopting GAPs. This finding aligns with previous research indicating that older farmers may be more resistant to change and less inclined to adopt new agricultural practices.

Education exhibits a strong positive correlation (.656**), indicating that farmers with higher levels of education tend to have more positive attitudes towards GAPs. This result is consistent with studies highlighting the role of education in improving farmers' awareness, understanding, and adoption of sustainable agricultural practices.

Farming experience shows a weak negative correlation (-0.069), suggesting that farmers with more experience in agriculture may have slightly less favorable attitudes towards GAPs. This finding contrasts with some studies that have found a positive relationship between farming experience and adoption of agricultural innovations, indicating the complexity of factors influencing farmers' attitudes and behaviors.

Farm size and annual income both exhibit weak positive correlations (0.046 and -0.049, respectively) with attitude towards GAPs, indicating a slight tendency for farmers with larger farms and higher incomes to have more positive attitudes towards GAPs. These findings are consistent with the literature suggesting that larger, more financially secure farmers may be more willing and able to invest in adopting new agricultural practices.

Training experience and extension contact show moderate positive correlations (0.001 and .565**, respectively) with attitude towards GAPs, indicating that farmers who have received training and have more frequent contact with agricultural extension services tend to have more positive attitudes towards GAPs. This result underscores the importance of extension services and farmer training programs in promoting the adoption of sustainable agricultural practices.

Organizational participation exhibits weak negative correlations (-0.038) with attitude towards GAPs, suggesting that this factor has minimal influence on farmers' attitudes towards GAPs in this context.

4. Discussion

4.1 Role of Education in Shaping Attitudes

One of the key findings of the study is the strong correlation between education levels and attitudes towards GAPs. This underscores the pivotal role of education in equipping farmers with the knowledge and skills necessary to adopt innovative farming practices. Education not only enhances farmers' understanding of the principles and benefits of GAPs but also empowers them to overcome challenges associated with implementation [15].

Previous research has consistently demonstrated the positive impact of education on agricultural productivity and sustainability. Farmers with higher levels of education are more likely to adopt modern farming techniques, utilize resources efficiently, and engage in continuous learning and experimentation [8]. In the context of aromatic rice cultivation in Bangladesh, educated farmers are better positioned to comprehend the importance of GAPs in enhancing crop quality, mitigating environmental risks, and accessing premium markets [2].Moreover, education fosters critical thinking and problem-solving skills, enabling farmers to adapt to changing agricultural landscapes and market dynamics. By investing in education and training programs tailored to the

needs of rice farmers, policymakers and development agencies can promote sustainable agricultural practices and drive rural development in Bangladesh [3].

4.2 Importance of Extension Services

Another significant finding of the study is the positive correlation between extension services and attitudes towards GAPs. Agricultural extension plays a crucial role in disseminating information, providing technical assistance, and promoting technology adoption among farmers. Extension agents serve as intermediaries between research institutions, government agencies, and farming communities, facilitating knowledge transfer and technology diffusion [6].

In Bangladesh, extension services are often delivered through government agencies, non-governmental organizations (NGOs), and community-based organizations (CBOs). These extension systems provide farmers with access to training programs, demonstration plots, market information, and advisory services, empowering them to make informed decisions and adopt best practices [5].However, the effectiveness of extension services depends on factors such as outreach, communication channels, and the relevance of information provided. To enhance the impact of extension programs on GAPs adoption, it is essential to strengthen institutional capacities, tailor extension messages to local contexts, and engage farmers in participatory decision-making processes [7].

4.3 Challenges in GAPs Adoption

Despite the positive attitudes observed among farmers towards GAPs, the study also highlights several challenges hindering widespread adoption. One such challenge is the perceived costliness of GAPs, cited by a significant proportion of respondents. The perceived high costs associated with implementing GAPs, including investments in technology, inputs, and infrastructure, may deter farmers, particularly those with limited financial resources, from adopting these practices [21].Addressing the affordability of GAPs requires a multi-faceted approach involving targeted subsidies, credit facilities, and value chain interventions. Government support programs, such as input subsidy schemes and agricultural credit initiatives, can help alleviate financial constraints and incentivize farmers to invest in sustainable practices [24]. Furthermore, public-private partnerships and market-based mechanisms can facilitate

access to affordable inputs, equipment, and services, fostering innovation and entrepreneurship in the agricultural sector [25].

Another challenge identified in the study is the perceived difficulty in implementing GAPs, particularly among farmers with limited technical knowledge and skills. The complexity of GAPs, which encompass a wide range of practices related to soil management, pest control, water conservation, and post-harvest handling, may overwhelm some farmers, leading to resistance or reluctance to change [26].

Overcoming the challenges associated with GAPs implementation requires tailored capacity-building initiatives, farmer training programs, and extension activities. Participatory approaches, such as farmer field schools, demonstration farms, and peer-to-peer learning networks, can empower farmers to acquire practical skills, share experiences, and adopt context-specific solutions. Furthermore, leveraging digital technologies, such as mobile apps, remote sensing, and precision agriculture tools, can enhance the effectiveness and scalability of extension services, reaching a wider audience and addressing specific needs [27].

4.4 Opportunities for Promoting GAPs Adoption

Despite the challenges, there are significant opportunities for promoting GAPs adoption and enhancing the sustainability of aromatic rice production in Bangladesh. One such opportunity lies in the integration of GAPs into value chain development initiatives, market linkages, and certification schemes. By adhering to GAPs standards and certification requirements, farmers can access premium markets, command higher prices, and differentiate their products based on quality and safety attributes [4].Moreover, consumer preferences for safe, healthy, and environmentally friendly food products present an opportunity for promoting GAPs adoption. By raising awareness about the benefits of GAPs, communicating transparently about production practices, and fostering consumer trust and confidence, farmers can create value-added opportunities and build brand reputation in domestic and international markets [20].Furthermore, policy support, regulatory frameworks, and institutional incentives can create an enabling environment for GAPs adoption and sustainable agriculture. Governments can develop and implement policies that promote environmentally sustainable practices, provide financial incentives for adopting GAPs, and strengthen regulatory enforcement mechanisms to ensure compliance with quality and safety standards.Collaboration among stakeholders, including government agencies, research

institutions, private sector actors, civil society organizations, and farmers' groups, is essential for advancing sustainable agricultural development in Bangladesh. By working together to address the multifaceted challenges facing the agricultural sector, stakeholders can harness the potential of GAPs to enhance food security, alleviate poverty, and promote inclusive growth [28].

4.5 Future Research Directions

Building on the findings of this study, future research could explore additional factors influencing farmers' attitudes towards GAPs, such as social networks, cultural norms, and market dynamics. Longitudinal studies tracking the adoption and impact of GAPs over time could provide valuable insights into the drivers and barriers of sustainable agricultural development. Furthermore, comparative studies across different regions, crops, and value chains could enrich our understanding of context-specific factors shaping GAPs adoption and its implications for rural livelihoods and environmental sustainability.

5. Conclusions

This study sheds light on the attitudes of aromatic rice farmers towards Good Agricultural Practices (GAPs) in Dinajpur, Bangladesh. Through a comprehensive analysis of socio-economic characteristics and their correlation with attitude towards GAPs, key insights have emerged. The findings reveal a predominantly positive attitude among farmers towards GAPs, with a significant proportion expressing high receptivity to these practices. Education and extension services emerge as influential factors, with higher levels of education and greater extension media contact correlating strongly with positive attitudes towards GAPs. However, challenges such as perceived costliness and difficulty in implementing GAPs highlight areas for targeted intervention and support. Despite these challenges, the study underscores the potential for GAPs to contribute to sustainable agriculture, environmental conservation, and future food security in Bangladesh. Moving forward, policymakers, extension agencies, and other stakeholders can leverage these findings to develop tailored strategies aimed at promoting GAPs adoption and enhancing the livelihoods of aromatic rice farmers. By fostering a conducive environment for sustainable agricultural practices, Bangladesh can position itself as a leader in responsible agricultural production, ensuring the well-being of both present and future generations.

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COMPETING INTERESTS DISCLAIMER:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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