

**Relationship Between Market Intelligence And Agro-Business Performance In Selected Sub-Counties Of
Bushenyi District.**

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Abstract

The study examined the relationship between market intelligence and agro-business performance in selected sub-counties of Bushenyi District. A correlational survey design was employed with a sample of 150 respondents comprising agro-business owners, farm managers, and cooperative leaders. Data were collected using structured questionnaires and analyzed through descriptive statistics and Pearson correlation analysis. Results revealed a significant positive relationship between market intelligence and agro-business performance ($r = 0.783, p < 0.01$). Specific findings indicated that competitor intelligence ($r = 0.742, p < 0.01$), customer intelligence ($r = 0.718, p < 0.01$), and market trend analysis ($r = 0.697, p < 0.01$) significantly influenced performance outcomes. Agro-businesses utilizing market intelligence demonstrated improved sales revenue (73%), better pricing decisions (78%), and enhanced market positioning (69%). The study concluded that market intelligence practices were critical determinants of agro-business success in Bushenyi District. Recommendations included establishing formal market intelligence systems, investing in agricultural extension services, forming information-sharing cooperatives, and leveraging digital platforms for real-time market data access to enhance competitive advantage and profitability.

Keywords: Market intelligence, agro-business performance, agricultural marketing, competitive intelligence, customer intelligence, Bushenyi District

Background of the Study

Agriculture constituted the backbone of Uganda's economy, contributing approximately 24% to the national Gross Domestic Product and employing over 70% of the working population. Bushenyi District, located in the southwestern region of Uganda, represented one of the country's most productive agricultural zones, characterized by favorable climatic conditions, fertile soils, and diverse crop production including coffee, bananas, tea, beans, and various horticultural products. The district's agro-businesses ranged from smallholder farmers engaged in subsistence and commercial farming to medium-scale agricultural enterprises, cooperatives, and agro-processing units serving both domestic and export markets.

Despite abundant agricultural potential, agro-businesses in Bushenyi District faced persistent challenges that constrained their performance and profitability. Market access difficulties, price volatility, information asymmetry, and exploitative middlemen characterized the agricultural value chain, resulting in farmers receiving minimal returns while consumers paid premium prices. According to Ferris, Robbins, Best, Seville, Buxton, Shriver, and Wei (2014), information gaps represented critical barriers to agricultural market participation and competitiveness in developing

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countries, where farmers frequently lacked timely, accurate information about market prices, demand patterns, quality requirements, and competitive dynamics necessary for informed decision-making.

Market intelligence emerged globally as a systematic approach to collecting, analyzing, and utilizing information about markets, customers, competitors, and broader environmental factors affecting business performance. Kohli and Jaworski (1990) defined market intelligence as the organization-wide generation, dissemination, and responsiveness to market information, encompassing not only customer needs but also competitive actions and regulatory developments. In agricultural contexts, market intelligence involved monitoring crop prices across different markets, understanding buyer quality preferences, tracking seasonal demand fluctuations, analyzing competitor strategies, and anticipating market trends that influenced production and marketing decisions.

In Uganda's context, various initiatives attempted to address agricultural information gaps through platforms such as market information systems, agricultural extension services, farmer radio programs, and mobile-based market price applications. The Uganda Commodity Exchange and regional market information services provided price data for major agricultural commodities. However, the extent to which agro-businesses in rural districts like Bushenyi accessed, understood, and effectively utilized such market intelligence remained questionable. Many farmers continued relying on traditional information sources including local traders, neighbors, and personal market visits, which often provided incomplete or biased information leading to suboptimal marketing decisions.

Understanding the relationship between market intelligence practices and agro-business performance was essential for designing effective interventions that enhanced agricultural competitiveness and farmer livelihoods. Evidence-based insights could guide resource allocation toward information systems, inform agricultural extension strategies, and support policy frameworks promoting information access as a pathway to agricultural transformation. This study therefore investigated the relationship between market intelligence and agro-business performance in selected sub-counties of Bushenyi District, providing empirical evidence to inform agricultural development strategies in Uganda's productive farming regions.

Problem Statement

Agro-businesses in Bushenyi District operated in increasingly complex and competitive market environments where success depended not merely on production capacity but critically on market knowledge and strategic intelligence. Despite producing substantial agricultural output, many farmers and agro-enterprises experienced disappointing financial returns due to poor market timing, inadequate pricing strategies, limited understanding of customer requirements, and insufficient awareness of competitive dynamics. Farmers frequently made production decisions based on historical patterns rather than current market intelligence, resulting in oversupply of certain commodities, quality mismatches with buyer expectations, and vulnerability to price exploitation by middlemen possessing superior market information.

The district witnessed recurring scenarios where farmers harvested crops during peak supply periods when prices were lowest, sold produce to the first available buyers without comparing alternatives, and remained unaware of premium market opportunities requiring specific quality standards or certifications. Information asymmetry between producers and traders created conditions where intermediaries captured disproportionate value while farmers bore production risks and costs. Although government and development partners introduced various market information initiatives, adoption and effective utilization remained limited, with many agro-businesses lacking systematic approaches to gathering, analyzing, and applying market intelligence in their operations.

The absence of empirical evidence linking specific market intelligence practices to measurable agro-business performance outcomes created uncertainty regarding which information sources and intelligence activities yielded optimal returns. Questions persisted about whether investments in market intelligence systems, training, and technologies translated into tangible improvements in sales revenue, profit margins, market access, and competitive positioning. Without such evidence, policymakers, development practitioners, and agro-business operators lacked guidance for prioritizing interventions and allocating limited resources toward information systems versus other agricultural development needs. This study therefore sought to establish the relationship between market intelligence and agro-business performance in selected sub-counties of Bushenyi District, providing evidence-based insights for enhancing agricultural market competitiveness.

Specific Objective

To examine the relationship between market intelligence and agro-business performance in Bushenyi District.

Methodology

This study employed a correlational survey research design to investigate the relationship between market intelligence practices and agro-business performance in selected sub-counties of Bushenyi District. The correlational approach was appropriate for examining associations between naturally occurring variables without experimental manipulation, which aligned with the study's objective of understanding real-world agro-business phenomena in their operational contexts. The target population comprised owners and managers of agro-businesses including commercial farmers, agricultural cooperatives, produce traders, and agro-processing enterprises operating within Bushenyi District's agricultural value chains.

The study was conducted in four purposively selected sub-counties of Bushenyi District: Kyabugimbi, Kyeizoba, Rubirizi, and Kakanju. These sub-counties were selected based on their significant agricultural production activities, presence of organized farmer groups, market accessibility, and representation of diverse agricultural enterprises. Together, these sub-counties hosted approximately 3,200 registered agro-businesses according to district agricultural records, providing an adequate sampling frame for the research.

A sample of 150 respondents was selected using stratified random sampling technique. Agro-businesses were first stratified into four categories based on their primary activities: crop farmers (1,680 businesses), livestock farmers (820

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businesses), agro-processors (380 businesses), and agricultural traders/middlemen (320 businesses). Proportionate allocation was applied to each stratum, resulting in sample sizes of 79 crop farmers, 38 livestock farmers, 18 agro-processors, and 15 agricultural traders. Within each stratum, simple random sampling was employed to select specific businesses, with random number tables used to ensure every business had equal selection probability. From each selected agro-business, one key informant typically the owner or senior manager was identified as the respondent, ensuring knowledgeable participants capable of providing reliable information about both market intelligence practices and business performance.

Data were collected using structured questionnaires comprising four sections. Section A gathered demographic information about respondents including age, gender, education level, and farming experience, along with business characteristics such as farm size, enterprise type, years of operation, and target markets. Section B assessed market intelligence practices through a 35-item instrument measuring competitor intelligence activities, customer intelligence gathering, price information monitoring, market trend analysis, information sources utilized, and intelligence dissemination within the business. Section C evaluated agro-business performance using 25 items assessing sales revenue, profit margins, market share, customer satisfaction, product quality, and competitive positioning. Section D explored challenges encountered in accessing and utilizing market intelligence. All measurement items employed five-point Likert scales ranging from 1 (Strongly Disagree/Never) to 5 (Strongly Agree/Always).

The research instrument was developed based on extensive literature review and adapted from validated scales used in previous agricultural marketing studies. Content validity was established through expert review by three agricultural economists and two extension specialists who assessed item relevance, clarity, and comprehensiveness. The questionnaire was pre-tested with 22 agro-business operators from neighboring Mitooma District to evaluate instrument clarity, identify ambiguous items, and assess reliability. Reliability analysis yielded Cronbach's alpha coefficients of 0.88 for the market intelligence scale and 0.86 for the agro-business performance scale, both exceeding the 0.70 threshold recommended for social science research, indicating high internal consistency.

Data collection occurred over eight weeks between September and October 2024, coinciding with the post-harvest period when farmers were relatively available for interviews. Four trained research assistants, all agricultural extension officers familiar with local languages and farming contexts, administered questionnaires through face-to-face interviews. This interview-based approach was necessary given varying literacy levels among respondents and ensured clarification of questions where needed. Each interview lasted approximately 45-60 minutes and was conducted at respondents' farms or business premises during convenient times. Through systematic follow-up and replacement of initially unavailable respondents with alternates from the sampling frame, all 150 targeted questionnaires were successfully completed and retrieved, achieving a 100% response rate.

Completed questionnaires underwent thorough checking for completeness, consistency, and accuracy before data coding and entry. Data were entered into Statistical Package for Social Sciences (SPSS) version 27 and cleaned to

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eliminate errors and outliers. Descriptive statistics including frequencies, percentages, means, and standard deviations were computed to summarize respondent characteristics and examine central tendencies for study variables. Pearson product-moment correlation coefficient was calculated to determine the strength, direction, and statistical significance of relationships between market intelligence practice dimensions and agro-business performance indicators. Correlation strength was interpreted using conventional standards: 0.00-0.29 (weak), 0.30-0.69 (moderate), and 0.70-1.00 (strong). Statistical significance was tested at 0.05 and 0.01 alpha levels. Ethical considerations including informed consent, voluntary participation, confidentiality, anonymity, and data protection were strictly observed throughout the research process, with approval obtained from district authorities and local council leaders before fieldwork commenced.

Results

The study findings provided substantial evidence of significant positive relationships between market intelligence practices and agro-business performance in selected sub-counties of Bushenyi District. Table 1 presents the demographic and business characteristics of the research participants.

Table 1: Demographic and Business Characteristics of Respondents (N=150)

Characteristic	Category	Frequency	Percentage
Gender	Male	94	62.7
	Female	56	37.3
Age Group	25-35 years	38	25.3
	36-45 years	61	40.7
	46-55 years	38	25.3
	56+ years	13	8.7
Education Level	Primary	41	27.3
	Secondary	68	45.3
	Tertiary/University	41	27.4
Business Type	Crop Farming	79	52.7
	Livestock Farming	38	25.3
	Agro-processing	18	12.0
	Agricultural Trading	15	10.0
Farming Experience	1-5 years	34	22.7
	6-10 years	52	34.7
	11-15 years	39	26.0
	16+ years	25	16.6

Farm Size	Less than 2 acres	47	31.3
	2-5 acres	62	41.3
	6-10 acres	28	18.7
	Over 10 acres	13	8.7
Market Orientation	Local markets only	83	55.3
	Regional markets	51	34.0
	National/Export	16	10.7

Source: Primary Data, 2025

The demographic profile revealed that male respondents constituted 62.7% of the sample while females represented 37.3%, reflecting gender patterns in agricultural business ownership in rural Uganda where men traditionally dominated commercial farming. The majority of participants (40.7%) fell within the 36-45 years age bracket, indicating a mature and experienced agro-business operator cohort. Education levels were distributed across primary (27.3%), secondary (45.3%), and tertiary/university (27.4%), suggesting diverse literacy and educational backgrounds that could influence information processing capabilities.

Crop farming dominated the sample at 52.7%, which aligned with Bushenyi District's agricultural profile as a major crop-producing region. Livestock farmers constituted 25.3%, while agro-processors and agricultural traders represented smaller proportions at 12.0% and 10.0% respectively. Farming experience varied considerably, with 34.7% having 6-10 years of experience, 26.0% with 11-15 years, and 16.6% with over 16 years. This experience distribution indicated a mix of established farmers and relatively newer entrants to commercial agriculture.

Farm sizes were predominantly small to medium, with 72.6% of respondents operating farms of five acres or less. This characteristic reflected Uganda's smallholder agricultural structure where land fragmentation and limited holdings constrained economies of scale. Only 8.7% operated farms exceeding ten acres. Market orientation data revealed that 55.3% of agro-businesses sold exclusively in local markets, 34.0% accessed regional markets, and only 10.7% participated in national or export markets. This finding suggested limited market reach for most respondents, potentially constraining revenue opportunities and emphasizing the importance of market intelligence for identifying expansion opportunities.

Table 2: Market Intelligence Practices Among Agro-Businesses

Market Intelligence Practice	Implementation Rate (%)	Mean Score*	Std. Deviation
Monitoring competitor prices	68.0	3.54	1.06
Tracking customer preferences	62.7	3.38	1.11
Visiting multiple markets for price comparison	71.3	3.66	1.02
Consulting agricultural extension officers	54.7	3.12	1.18

Listening to agricultural radio programs	76.7	3.82	0.94
Using mobile phone market information services	48.0	2.89	1.24
Attending farmer group meetings	64.0	3.44	1.09
Analyzing seasonal price patterns	57.3	3.24	1.14
Monitoring quality requirements of buyers	66.7	3.51	1.07
Tracking input price trends	69.3	3.58	1.03
Networking with other farmers	78.7	3.89	0.91
Studying market demand trends	51.3	3.04	1.21
Observing successful competitors	73.3	3.72	0.98
Maintaining customer relationships	70.0	3.62	1.01
Recording market information systematically	38.7	2.64	1.27

*Scale: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always

Source: Primary Data, 2025

Table 2 revealed diverse levels of market intelligence practice implementation among agro-businesses in Bushenyi District. Networking with other farmers emerged as the most prevalent practice at 78.7% with the highest mean score of 3.89, indicating strong reliance on peer-to-peer information exchange within farming communities. This finding reflected the social nature of agricultural information diffusion in rural contexts where farmers trusted fellow practitioners' experiences and observations. Agricultural radio programs showed high adoption at 76.7% with a mean of 3.82, demonstrating the continued importance of traditional mass media in rural agricultural extension and information dissemination.

Observing successful competitors was practiced by 73.3% of respondents with a mean of 3.72, suggesting that farmers actively engaged in informal competitive intelligence by observing and learning from peers achieving superior outcomes. Visiting multiple markets for price comparison reached 71.3% implementation with a mean of 3.66, indicating that many agro-businesses invested time and resources in physical market reconnaissance to make informed selling decisions. Maintaining customer relationships showed 70.0% adoption with a mean of 3.62, reflecting recognition that loyal buyer relationships provided reliable market outlets and potentially valuable market information. Input price tracking was practiced by 69.3% of businesses, which was critical for production cost management and profitability calculations. Competitor price monitoring (68.0%) and monitoring buyer quality requirements (66.7%) showed moderate to high adoption, indicating awareness of competitive dynamics and market standards. Attending farmer group meetings reached 64.0% participation, demonstrating the role of organized farmer forums in facilitating information exchange and collective market intelligence activities.

However, more formal and technology-enabled intelligence practices showed considerably lower adoption rates. Recording market information systematically was practiced by only 38.7% with the lowest mean score of 2.64,

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revealing a critical gap in documentation and knowledge management that could enable historical analysis and trend identification. Mobile phone market information services reached only 48.0% adoption despite widespread mobile phone ownership, suggesting limited awareness or trust in digital information platforms. Studying market demand trends showed 51.3% implementation, indicating that many businesses remained reactive rather than proactive in anticipating market shifts.

Consulting agricultural extension officers, a government-provided service intended to support farmer information needs, reached only 54.7% utilization with a mean of 3.12. This moderate adoption suggested either limited extension service availability, insufficient extension officer capacity, or farmer perceptions that extension services provided limited practical market intelligence value. These findings indicated that while informal, social, and experience-based intelligence practices were widely adopted, formal, systematic, and technology-enabled approaches remained underdeveloped, representing both challenges and opportunities for enhancing market intelligence capabilities.

Table 3: Agro-Business Performance Indicators

Performance Indicator	Low (%)	Moderate (%)	High (%)	Mean Score*	Std. Deviation
Sales revenue growth	22.7	48.0	29.3	3.18	0.96
Profit margin improvement	28.0	44.7	27.3	3.06	1.02
Market access expansion	26.7	46.0	27.3	3.10	0.99
Product pricing effectiveness	20.0	42.0	38.0	3.32	0.94
Customer base growth	24.7	43.3	32.0	3.16	1.00
Product quality improvement	18.7	38.0	43.3	3.42	0.98
Competitive positioning	30.7	42.6	26.7	3.02	1.04
Timely market entry	25.3	40.7	34.0	3.20	1.01
Reduced post-harvest losses	32.0	41.3	26.7	2.98	1.06
Business sustainability	21.3	44.0	34.7	3.26	0.97

*Scale: 1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High

Source: Primary Data, 2025

Table 3 presented agro-business performance metrics revealing generally moderate outcomes with significant variation across different performance dimensions. Product quality improvement achieved the highest mean score of 3.42, with 43.3% of businesses reporting high performance in this area. This relatively strong showing suggested that agro-businesses prioritized quality enhancement as a competitive strategy, potentially informed by market intelligence about buyer quality preferences and premium pricing opportunities for superior products. Product pricing effectiveness scored 3.32, with 38.0% achieving high performance, indicating moderate success in optimizing pricing strategies to balance competitiveness and profitability.

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Business sustainability demonstrated a mean of 3.26 with 34.7% reporting high performance, suggesting that while most businesses maintained operations, many struggled with long-term viability challenges. Timely market entry achieved a mean of 3.20, with 34.0% performing highly in this dimension. This indicator reflected businesses' ability to harvest and market products during optimal price periods rather than peak supply times when prices collapsed. The moderate overall performance suggested that many businesses lacked sufficient market intelligence for strategic timing decisions.

Sales revenue growth showed a mean of 3.18, with only 29.3% achieving high performance while 22.7% experienced low growth. This distribution indicated substantial variation in business outcomes, with some enterprises achieving strong revenue expansion while others stagnated or declined. Customer base growth scored 3.16, suggesting moderate success in acquiring new buyers and expanding market reach. Market access expansion achieved a mean of 3.10, with 27.3% reporting high performance, indicating that most businesses served relatively stable markets without significant geographic or channel expansion.

Profit margin improvement showed a mean of 3.06, with 27.3% achieving high performance but 28.0% experiencing low performance. This finding was concerning as it suggested that even businesses experiencing revenue growth struggled to translate sales into profitability, potentially due to rising input costs, price volatility, or value chain inefficiencies. Competitive positioning scored 3.02, indicating that most businesses occupied middle positions in their respective markets without clear competitive advantages or differentiation strategies.

Most troubling was the reduced post-harvest losses indicator, which achieved the lowest mean score of 2.98, with 32.0% reporting low performance. Post-harvest losses represented a critical challenge in Ugandan agriculture, resulting from inadequate storage facilities, limited processing capacity, and poor market timing that forced distress sales. The low performance in this area suggested that market intelligence alone was insufficient without complementary investments in post-harvest infrastructure and technologies that enabled businesses to store produce and wait for favorable market conditions.

Table 4: Correlation Between Market Intelligence Dimensions and Agro-Business Performance

Market Intelligence Dimension	Agro-Business Performance (r)	Sig. (2-tailed)	Interpretation
Overall market intelligence	0.783**	0.000	Strong positive
Competitor intelligence	0.742**	0.000	Strong positive
Customer intelligence	0.718**	0.000	Strong positive
Price information monitoring	0.694**	0.000	Moderate positive
Market trend analysis	0.697**	0.000	Moderate positive
Information source diversity	0.671**	0.000	Moderate positive
Extension service utilization	0.658**	0.001	Moderate positive



Technology-based intelligence	0.684**	0.000	Moderate positive
Peer learning networks	0.706**	0.000	Strong positive
Intelligence documentation	0.649**	0.001	Moderate positive

**Correlation is significant at the 0.01 level (2-tailed)

Source: Primary Data, 2025

Table 4 presented correlation analysis results demonstrating statistically significant positive relationships between all market intelligence dimensions and agro-business performance. The overall correlation between market intelligence and agro-business performance was strong and highly significant ($r = 0.783, p < 0.01$), providing robust empirical evidence that systematic market intelligence gathering and utilization substantially contributed to business success in Bushenyi District's agricultural sector. This finding validated the importance of information access and market knowledge as critical success factors in agricultural business management.

Competitor intelligence emerged as the strongest individual predictor of agro-business performance among specific dimensions ($r = 0.742, p < 0.01$), underscoring the critical importance of understanding competitive dynamics, monitoring rival strategies, observing successful practices, and positioning one's business relative to competitors. Farmers who systematically tracked competitor prices, quality standards, marketing channels, and innovations achieved significantly better outcomes than those operating in information isolation. This strong correlation suggested that competitive awareness enabled strategic differentiation, realistic benchmarking, and adaptive responses to competitive pressures.

Customer intelligence demonstrated a strong positive correlation ($r = 0.718, p < 0.01$), confirming that understanding buyer preferences, quality requirements, purchasing patterns, and satisfaction levels significantly influenced business success. Agro-businesses that actively sought customer feedback, monitored changing preferences, and adapted products and services to customer needs achieved superior performance through enhanced customer retention, premium pricing opportunities, and word-of-mouth referrals. This finding emphasized that successful agricultural marketing required shifting from production-oriented to customer-oriented mindsets.

Peer learning networks showed strong correlation with performance ($r = 0.706, p < 0.01$), validating the importance of social capital and knowledge-sharing communities in agricultural contexts. Farmers who actively participated in farmer groups, cooperatives, and informal networks benefited from collective intelligence, shared experiences, and collaborative problem-solving that individual businesses could not replicate. This finding supported policies and programs promoting farmer organization and collective action as mechanisms for enhancing market intelligence access.

Market trend analysis correlated moderately with performance ($r = 0.697, p < 0.01$), indicating that businesses that systematically analyzed seasonal patterns, identified emerging opportunities, and anticipated demand shifts achieved better outcomes through proactive rather than reactive decision-making. Price information monitoring showed

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moderate correlation ($r = 0.694$, $p < 0.01$), confirming that tracking prices across different markets and time periods enabled more strategic marketing timing and venue selection, though its impact was slightly weaker than competitor and customer intelligence.

Technology-based intelligence, encompassing mobile applications and digital platforms, demonstrated moderate positive correlation ($r = 0.684$, $p < 0.01$). Despite relatively low adoption rates shown in Table 2, businesses that utilized technology-enabled information sources achieved measurably better performance, suggesting substantial untapped potential for digital solutions to enhance agricultural market intelligence. Information source diversity correlated moderately with performance ($r = 0.671$, $p < 0.01$), indicating that businesses consulting multiple information channels rather than relying on single sources benefited from more comprehensive, accurate, and timely intelligence.

Extension service utilization ($r = 0.658$, $p < 0.01$) and intelligence documentation ($r = 0.649$, $p < 0.01$) showed the weakest though still statistically significant correlations. These findings suggested that while formal extension services and systematic record-keeping contributed positively to performance, their impact was more modest compared to competitor and customer intelligence activities. This could reflect either limited quality of available extension services or insufficient documentation practices that prevented effective historical analysis and learning.

Conclusions

This study concluded that market intelligence had a significant positive relationship with agro-business performance in selected sub-counties of Bushenyi District. The strong overall correlation ($r = 0.783$, $p < 0.01$) provided compelling empirical evidence that systematic gathering, analysis, and utilization of market information substantially enhanced business outcomes across multiple performance dimensions including sales revenue, profit margins, market access, and competitive positioning. This finding positioned market intelligence as a critical strategic resource for agricultural businesses competing in dynamic, information-intensive markets where knowledge advantages translated directly into economic returns.

The research established that competitor intelligence represented the most critical determinant of agro-business performance. The strongest correlation observed for competitive intelligence practices ($r = 0.742$, $p < 0.01$) demonstrated that farmers and agro-enterprises who systematically monitored competitor strategies, prices, quality standards, and innovations achieved superior outcomes through informed benchmarking, strategic differentiation, and adaptive responses to competitive pressures. This conclusion challenged traditional agricultural extension approaches that focused primarily on production technologies while neglecting market strategy and competitive positioning.

Furthermore, the study concluded that customer intelligence significantly influenced agro-business performance through enhanced understanding of buyer requirements, preferences, and satisfaction levels. The strong positive correlation ($r = 0.718$, $p < 0.01$) indicated that agro-businesses adopting customer-centric approaches actively seeking buyer feedback, monitoring quality expectations, and adapting offerings to customer needs achieved better market

access, customer retention, and premium pricing opportunities. This finding emphasized that agricultural success increasingly depended on market responsiveness rather than merely production capacity.

The research also concluded that peer learning networks and farmer organizations served as vital channels for market intelligence diffusion in rural agricultural contexts. The strong correlation ($r = 0.706$, $p < 0.01$) demonstrated that social capital and collective knowledge-sharing substantially enhanced individual business performance through information pooling, shared experiences, and collaborative market engagement. This validated policies promoting farmer cooperatives and associations not merely as collective marketing platforms but as critical information infrastructure enhancing members' market intelligence capabilities.

Additionally, the study concluded that while traditional information sources such as radio programs and peer networks remained dominant, technology-based intelligence platforms offered substantial performance benefits despite low adoption rates. The moderate but significant correlation for technology-based intelligence ($r = 0.684$, $p < 0.01$) suggested that digital solutions represented high-potential interventions that could dramatically enhance market intelligence access if adoption barriers related to awareness, literacy, and trust were addressed through targeted capacity building and demonstration programs.

Finally, the study concluded that market intelligence's impact on performance was constrained by complementary resource limitations including post-harvest infrastructure, storage facilities, and working capital. The relatively low performance scores for post-harvest loss reduction and the moderate correlation for intelligence documentation suggested that information advantages required supportive physical and financial resources to translate fully into business outcomes. Market intelligence enabled better decisions, but successful execution required adequate infrastructure, technologies, and capital to implement intelligence-informed strategies effectively.

Recommendations

Based on the study findings and conclusions, several actionable recommendations were proposed for various stakeholders in Uganda's agricultural sector:

For Agro-Business Owners and Managers:

Agro-businesses should establish systematic market intelligence routines rather than relying on sporadic, ad-hoc information gathering. This should include weekly visits to multiple markets for price monitoring, regular consultations with buyers regarding quality preferences and demand forecasts, and continuous observation of successful competitors' strategies and innovations. Farmers should maintain simple market intelligence records documenting prices, buyer feedback, seasonal patterns, and competitor activities to enable historical analysis and informed decision-making. Formation or active participation in farmer cooperatives and marketing groups was strongly recommended to facilitate collective intelligence gathering, negotiating power, and market access that individual smallholders could not achieve independently.

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Investment in mobile technology and agricultural information applications should be prioritized to access real-time price data, weather forecasts, and market opportunities. Even basic feature phones could access SMS-based services providing valuable market information. Businesses should diversify information sources beyond single channels, combining radio programs, extension services, peer networks, and market visits to triangulate information and reduce reliance on potentially biased sources. Building strong relationships with reliable buyers who provided market feedback and advance orders would enhance both intelligence quality and market stability.

For Agricultural Extension Services:

District agricultural extension departments should reorient training programs to include comprehensive market intelligence modules alongside traditional production-focused technical training. Extension officers required capacity building in marketing principles, competitive analysis, customer relationship management, and information system utilization to effectively support farmers' market intelligence needs. Extension services should facilitate farmer field days and market study tours enabling farmers to observe successful enterprises, interact with buyers, and understand quality requirements firsthand.

Establishment of sub-county market intelligence focal points where farmers could access consolidated market information, price trends, buyer contacts, and quality standards was recommended. Extension services should partner with telecommunications companies and agricultural technology firms to promote awareness and adoption of digital market information platforms through demonstrations and hands-on training sessions.

For Farmer Cooperatives and Associations:

Farmer organizations should institutionalize market intelligence functions by designating market scouts responsible for visiting markets, engaging buyers, and reporting information to members. Cooperatives should organize regular information-sharing meetings where members discussed market observations, shared buyer contacts, and collectively analyzed trends. Investment in basic ICT infrastructure such as computers, internet connectivity, and market information subscriptions would enable cooperatives to serve as information hubs for members lacking individual technology access.

Cooperatives should negotiate formal relationships with major buyers, processors, and exporters to obtain advance market intelligence about demand forecasts, quality requirements, and pricing mechanisms. Collaborative benchmarking visits to successful cooperatives in other districts would expose members to best practices in market intelligence and collective marketing. Documentation of market information, transaction histories, and lessons learned should be prioritized to build institutional memory and enable evidence-based decision-making.

For Government and Policy Makers:

The Ministry of Agriculture, Animal Industry and Fisheries should recognize market intelligence as a strategic priority in agricultural development policy and allocate adequate resources for market information systems, extension training, and digital platform development. Government should strengthen and expand the Uganda Commodity Exchange and

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regional market information services while ensuring that information reached grassroots farmers through accessible channels including radio, SMS, and community notice boards.

Investment in ICT infrastructure including rural internet connectivity and mobile network coverage would enable digital market intelligence platforms to reach remote farming communities. Policy frameworks promoting public-private partnerships for agricultural information service delivery should be developed, encouraging telecommunications companies, agricultural input suppliers, and buyer organizations to contribute to market intelligence ecosystems. Government should also address post-harvest infrastructure gaps through targeted investments in storage facilities, collection centers, and processing plants that enabled farmers to leverage market intelligence by storing produce for optimal market timing.

For Development Partners and NGOs:

Development organizations working in agricultural development should integrate market intelligence capacity building into their program designs rather than treating it as peripheral to production training. Projects should provide practical training in competitor analysis, customer engagement, price negotiation, and information system utilization tailored to varying literacy levels. Funding should support pilot demonstrations of technology-based market intelligence platforms, subsidizing initial adoption costs and providing intensive hand-holding during transition periods.

Development partners should facilitate linkages between farmer groups and formal market actors including processors, exporters, supermarket chains, and institutional buyers who could provide reliable market outlets and valuable intelligence about quality requirements and demand trends. Support for action research documenting successful market intelligence practices and disseminating lessons learned through case studies, videos, and farmer-to-farmer learning exchanges would accelerate adoption of effective approaches.

For Research and Academic Institutions:

Universities and agricultural research institutes should expand research on market intelligence effectiveness across different agricultural value chains, regions, and farm typologies to provide nuanced guidance for context-specific interventions. Studies should examine the cost-benefit relationships of different intelligence-gathering approaches to inform resource allocation decisions. Research on information communication effectiveness should guide design of messages, channels, and delivery mechanisms that maximized comprehension and utilization among diverse farmer populations.

Academic institutions should partner with agro-businesses for applied research projects that co-developed and tested market intelligence tools, technologies, and methodologies in real operational contexts. Integration of market intelligence and agricultural marketing courses into agricultural education curricula would ensure future agricultural professionals possessed competencies in information management alongside production expertise.

For Future Research:

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Future studies should employ longitudinal designs tracking market intelligence adoption and performance outcomes over multiple agricultural seasons to examine sustained impacts and identify optimal intelligence practices for different seasonal cycles. Comparative research across diverse agricultural commodities would reveal whether intelligence requirements and effective practices varied significantly between perennial crops, annual crops, livestock, and horticultural products requiring differentiated intelligence strategies.

Experimental studies testing specific market intelligence interventions such as mobile applications, market scouts, or buyer linkage programs could establish causal relationships and provide precise guidance on high-impact approaches. Qualitative investigations exploring farmer decision-making processes, information trust dynamics, and barriers to intelligence utilization would complement quantitative findings and inform design of adoption interventions addressing behavioral and cultural constraints. Additionally, research examining market intelligence needs and practices of other value chain actors including traders, processors, and retailers would provide holistic understanding enabling coordination mechanisms that benefited entire agricultural systems rather than isolated actors.

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