STRATEGIC RISK MANAGEMENT AS A DRIVER OF PERFORMANCE: INSIGHTS FROM SEED PROCESSING COMPANIES IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

The seed processing sector is crucial for agriculture and makes a substantial impact on food security and economic growth. However, during the last four years, key performance metrics among significant players in the seed processing business have declined. In recent years, return on investment (ROI) has significantly decreased, which is indicative of seed processing companies' decreased profitability and lower financial returns. This study examined the effect of strategic risk management on the performance of seed processing companies in Nairobi City County, Kenya. The objectives were; to assess the effect of risk identification, risk assessment, risk mitigation and risk monitoring on the performance of seed processing companies in Nairobi City County, Kenya. The research was underpinned by the Modern Portfolio Theory, Contingency Theory, Resource-Based View (RBV) and Balanced Scorecard Model. A descriptive research design was utilized in the research. The target population consisted of 15 seed processing companies where eight departmental heads per company were considered as the respondents targeted. Therefore, the total target group consisted of 120 department heads from 15 seed processing firms. A census sampling method was utilized since the population was limited and feasible to manage. Primary data were gathered through semi-structured questionnaires. The study revealed strong adoption of strategic risk management practices among seed processing companies in Nairobi City County, with risk monitoring ($\beta = 0.354$), risk assessment ($\beta = 0.332$), risk mitigation ($\beta = 0.308$), and risk identification ($\beta = 0.289$) all exerting a positive and statistically significant influence on performance of seed processing firms ($p < 0.05$). The study concluded that strategic risk management, encompassing risk identification, risk assessment, risk mitigation and risk monitoring, significantly influences the performance of seed processing companies in Nairobi City County, Kenya. Seed processing companies should prioritize strengthening their risk identification systems, invest in robust risk assessment frameworks, enhance risk mitigation strategies and establish continuous risk monitoring mechanisms to build organizational resilience improve decision-making and sustain long-term operational performance in an increasingly volatile agricultural business environment.

Key words: Strategic Risk Management, Risk Identification, Risk Assessment, Risk Mitigation, Risk Monitoring, Organizational Performance.

INTRODUCTION

A seed processing company's performance depends on several factors that affect how efficiently it operates, its competitiveness, and its financial health, especially in the unpredictable world of agriculture (Zhang & Williams, 2023). Companies often face challenges like unstable raw material prices, strict quality control rules, unpredictable weather, supply chain issues, and the need for specialized technical skills (Martinez & Chen, 2024). Anderson and Kumar (2024) found that in 2023, 67% of seed processing plants saw a drop in throughput efficiency because of issues with equipment upgrades and quality checks. Regionally, the seed processing industry in Africa remains fragmented because multiple operators handle various agricultural products which include cereals and legumes and vegetables and hybrid crops (Adebayo & Nkosi, 2022).

In Kenya, seed processing industry plays a vital role in local agricultural productivity and food security because it enables the cultivation of maize, beans, vegetables, wheat, and horticultural crops (Wainaina & Njeri, 2024). The Ministry of Agriculture reports that seed processors use reserve capacities to handle emergency situations which occur during drought or flood events (Ministry of Agriculture, 2023). The industry faces several obstacles which include counterfeit seed products and inadequate cold storage facilities and fluctuations in market demand and expensive energy and intense market competition (Kariuki & Mwangi, 2023). Kenya Plant Health Inspectorate Service (KEPHIS) controls the seed certification process together with the seed standardization process, yet the financial limitations and climate variability and inadequate risk management by small and medium processing companies hinder industry development (Mutua & Odhiambo, 2022).

Strategic risk management is essential for organizational success because seed processing operations face both internal and external risks that determine their productivity (Chimucheka & Rungani, 2022). The process involves systematic procedures which start with identifying risks and continue through their assessment and mitigation until the implementation of risk monitoring systems to protect strategic objectives (Kraus, 2023). The combination of risk management and strategic planning processes allows companies to distribute their resources more effectively while reducing operational disturbances and taking advantage of development possibilities which result in better organizational performance (Mutua & Odhiambo, 2022). The seed processing industry in Nairobi faces strategic challenges which need effective risk management strategies to be resolved. The seed processing companies in Nairobi need to understand how strategic risk management impacts their performance because it will help them operate successfully in their difficult business environment while building long-term competitive advantages.

Statement of the problem

The seed processing industry is considered a core segment in the Kenyan agriculture and food security agenda. The Kenya Vision 2030 policy framework and the Agricultural Sector

Transformation and Growth Strategy (ASTGS) identifies seed systems as key drivers of agricultural productivity and competitiveness and calls for having competitive, quality based, and sustainable seed industries that are farmer-responsive and contribute to national food sufficiency (Kariuki & Mwangi, 2023). The Kenya Plant Health Inspectorate Service (KEPHIS) reports that key performance metrics in the seed processing sector have decreased throughout the last four years which includes the main businesses in the seed processing sector. The Return on Investment (ROI) showed a decrease which went from 19.3% in 2020 to 10.7% in 2023 while the company experienced operational difficulties because processing capacity used for work dropped from 84% in 2020 to 65% in 2023 (Kenya Seed Trade Association 2024). The seed quality compliance rates dropped from 92% in 2020 to 76% in 2023 because of contamination problems and insufficient processing systems and distribution network interruptions (Mwangi & Njoroge 2023).

Despite extensive research on risk management across industries, limited studies have examined its specific role in Kenyan seed processing company performance (Maina & Njihia, 2024). Given ongoing challenges including declining profitability, reduced capacity utilization, deteriorating quality compliance, and supply chain vulnerabilities (KEPHIS, 2024), assessing how strategic risk management practices; risk identification, assessment, mitigation, and monitoring affect operational efficiency, quality compliance, customer satisfaction, and return on investment is crucial. Moreover, it is still unclear how favourably these practices relate to the specific context of seed processing like the seasonality of availability, the management of genetic resources, the regulatory burdens placed on seed processors, and balancing the factors of quality and cost control) (Otieno & Ombuki, 2023). Research on risk management practices has been conducted extensively across various industries yet only a few studies explore how these practices specifically impact the performance of seed processing companies in Kenya (Maina & Njihia, 2024). The companies needs to evaluate its strategic risk management methods because it faces multiple challenges that include decreasing profits, lower production levels, deteriorating compliance with quality standards and supply chain risks (KEPHIS, 2024). The study hence was motivated to address these issues and the results are expected to give empirical support on the impact of strategic risk management on performance of seed processing firms in Nairobi City County, Kenya.

Objectives of the study

i. To explore the effect of risk identification on the performance of seed processing companies in Nairobi City County, Kenya.
ii. To determine the effect of risk assessment on the performance of seed processing companies in Nairobi City County, Kenya.
iii. To examine the effect of risk mitigation on the performance of seed processing companies in Nairobi City County, Kenya.
iv. To establish the effect of risk monitoring on the performance of seed processing companies in Nairobi City County, Kenya.

REVIEW OF LITERATURE

Theoretical Review

Modern Portfolio Theory

Markowitz developed Modern Portfolio Theory (1952), and then elaborated by Sharpe (1964). The theory postulate that investors can achieve the best combination of risk and return through a combination of asset allocation and active investments. The theory states that organizations should allocate resources and develop their asset base in order to achieve maximum returns which correspond to specific risk levels and minimum risk requirements. Babatunde and Perera (2023) demonstrated that organizations applying portfolio approaches achieve superior performance by systematically balancing operational, financial, market, and strategic risk exposure.

Kolm, Tütüncü, and Fabozzi (2021) state that MPT requires organizations to determine which risk management combinations will achieve their best performance while keeping their risks within acceptable limits. The seed processing industry requires companies to distribute their financial resources between quality control, supply chain security measures, legal obligations, and new technology development. The theory states that companies that create systematic methods for identifying risks along with portfolio optimization will be able to develop risk management portfolios, which in turn will improve the way they conduct their business operations and develop new products and their ability to respond to fluctuations in the marketplace.

Contingency Theory

The theory was developed by Fiedler (1964) and later advanced by Lawrence and Lorsch (1967), explains how organizations achieve the goals through matching their operational methods with their particular contextual factors. The theory rejects universal best practices because it shows that different management methods work best with various environmental conditions and organizational characteristics and technological systems and industry types (Donaldson, 2020). Contingency Theory posits that organizations need to identify their specific risk management needs to achieve effective risk identification, assessment, mitigation, and monitoring (Otley, 2021).

Chenhall and Moers (2023) demonstrated that organizational control systems and risk management systems receive their design and operational effectiveness from three main factors which include environmental uncertainty and task complexity and organizational structure. Seed processors need risk-monitoring systems which can change with new conditions that emerge from climate shifts and pest outbreaks and unpredictable market demand. The theory guides the study of how various organizational contexts impact the linkage between strategic risk management and performance results.

Resource-Based View (RBV)

The theory was first proposed by Penrose (1959) and later developed by Barney (1991), argues that competitive advantage comes from acquiring, developing, and using resources that are valuable, rare, inimitable, and non-substitutable (VRIN). The theory postulate that firm's internal capabilities and resources rather than external market conditions mainly determine its performance (Barney & Clark, 2019). The RBV theory shows that organizations which develop advanced risk management abilities as strategic assets will achieve better competitive results (Maritan & Peteraf, 2021). Seed processors use risk management capabilities which include all knowledge skills and processes and systems that operate across their value chains.

Kraaijenbrink, Spender, and Groen (2020) demonstrated that resource-based view theory continues to provide valuable insights for understanding how companies in identical markets perform under the same external conditions. The seed processing industry shows that companies with identical raw materials and market access will achieve different performance results due to strategic risk management. The theory shows that companies need to develop risk identification assessment, mitigation and monitoring abilities as their core strategic assets to achieve ongoing competitive advantages.

Balanced Scorecard Model

Kaplan and Norton (1992) created the model to establish a systematic approach for measuring performance outcomes in organizations with respect to strategies. The Balanced Scorecard Model has been extensively validated because previous, traditional measures of performance could not accurately represent how well organizations perform in today's complex business environment. According Kaplan and Norton (2019) model comprises four interrelated viewpoints: financial, customer, internal business processes, and learning and development. The Balanced Scorecard enables organizations to achieve strategic alignment since it requires all company operations to follow established strategic goals including their risk management processes. Seed processors need to implement risk management practices that support their main strategic objectives which include market expansion and quality leadership and regulatory excellence and sustainable growth.

Libby and Salterio and Webb (2019) demonstrated that this perspective shows how organizations develop their ability to adapt and enhance their performance as time progresses. The ability of seed processors to handle risks improves when they train their employees and adopt new technologies and manage their knowledge resources. The model asserts that companies ought to assess performance through complete measurement systems which identify all strategic risks that affect multiple performance areas. Seed processing companies achieve sustainable competitive advantage through balanced performance measurement and risk management practices because these approaches enable them to enhance financial performance and customer satisfaction and operational efficiency and organizational growth.

Empirical Literature Review

Risk Identification and Organizational Performance

Mwangi and Ngugi (2020) studied how risk identification practices influence manufacturing companies' performance in Kenya. The survey utilized descriptive research design, targeting 180 manufacturing managers who worked in different industrial sectors. The survey used stratified random sampling method to choose 150 responders from all manufacturing subsector groups. Data was gathered via structured inquiries. The data were analyzed via descriptive statistics and correlation techniques. Organizations that utilized formal risk identification techniques frequently experienced 35% reductions in operational disturbances compared to those organizations that relied only on informal risk identification techniques. The research failed to investigate agricultural processing industries which encounter three particular challenges: biological variability and seasonal fluctuations and quality control.

Githaiga and Kabiru (2023) investigated risk identification approach utilized by smallholder farmers in Kenya's agricultural sector examining SMEs in the agricultural sector. The research embraced a cross-sectional research design which included 250 smallholder farmers from Central Kenya who practiced commercial agriculture. The survey utilized cluster sampling techniques to select 200 farmers who participated in the research. The research gathered data via structured interviews and analysis of farming records and utilized descriptive statistics and correlation for analysis. Farmers utilized record-keeping and market analysis to identify risks achieved 30% better income stability and higher profit margins. The study provided valuable insights but it concentrated on primary agricultural production instead of value-added processing activities.

Risk Assessment and Organizational Performance

Kamau Mutiso and Onyango (2019) explored the risk assessment methods in Kenyan pharmaceutical manufacturing companies using a cross-sectional study approach. The research implemented stratified sampling methods which classified participants based on their pharmaceutical companies' size and product types to select 120 quality assurance managers and regulatory compliance officers from Pharmacy and Poisons Board registered pharmaceutical companies. The research selected 100 responders. The survey utilized structured surveys to gather data which they analyzed via descriptive and correlation analysis. Companies using quantitative risk assessment techniques achieved 40% lower product recalls while they maintained better regulatory compliance than companies using only qualitative assessments. The results showed that systematic risk assessment processes brought benefits to both product quality and market reputation. The regulatory frameworks governing pharmaceutical production create distinct operating conditions which differ from those applicable to seed processing company.

Muturi and Njeru (2022) studied the linkage between risk assessment rehearses and food safety management execution in hotels and restaurants in Kenya. The survey utilized descriptive methods to study a sample of 120 food service managers who were selected through purposive sampling

from a total population of 150 managers. The study gathered data via questionnaires and food safety audit reports, which they analyzed using correlation and regression methods. Establishments that performed regular HACCP assessments experienced a 45% reduction in foodborne illness incidents together with improved customer satisfaction rates. The application of systematic risk assessment methods led to better food safety results and improved business reputation for the company, which hospitality research studies did not consider agricultural processing-specific risks. Although seed processing operations may use HACCP principles, research did not evaluate agricultural processing-specific risks.

Risk Mitigation and Organizational Performance

Kibet, Chepkwony, and Bett (2020) examined the techniques utilized to mitigate risk by tea processors in Kenya. The research embraced a descriptive research design. A survey of all tea processing plant directors (n = 110) was conducted using stratified random sampling to chosen 90 participants from the universe of tea processing plants. Data was gathered via structured surveys and analyzed via descriptive and correlation analyses. The outcomes of the survey uncovered that tea processing plants with a strong focus on maintaining equipment, training employees, and implementing quality controls are achieving production levels that exceed 50% of their competitors. The results further demonstrate that using proactive approaches to risk mitigation enhances both operational reliability and competitiveness. The tea processing industry faces distinct risk factors that differ from those found in seed processing, especially in relation to fermentation processes and moisture control.

Kipkoech and Maritim (2022) studied the effects of risk mitigation practices on performance outcomes which exist within the horticulture export industry of Kenya. The survey embraced a cross-sectional research design. The survey involved 150 export firms which resulted in the random selection of 130 participants from those firms. The survey gathered data via structured inquiries and export performance records which they evaluated using correlation and multiple regression modeling techniques. The survey discovered that firms which keep documented contingency plans together with alternative logistics arrangements experience 40 percent less shipment losses while they achieve increased export volumes. The results uncovered that companies which utilized proactive mitigation planning methods achieved better supply chain resilience and customer satisfaction results. The horticultural export industry needs to deal with perishability challenges which create problems similar to seed storage risks because international trade regulations prevent them from being used in domestic seed processing activities.

Risk Monitoring and Organizational Performance

Omondi, Ogutu, and Munyoki (2022) examined how risk monitoring affects retail performance in Nairobi City County, Kenya. The survey targeted 180 store managers, with 150 selected through cluster sampling. This research utilized structured questionnaires to gathered data which were analysed via regression analysis methods and descriptive analysis methods. Those retailers that

used the dashboard monitoring systems achieved a 40% reduction in stock outs whilst also improving their inventory management resulting in increased profitability. The research showed that real time monitoring systems increased operational efficiency along with increased customer satisfaction. This research study on retail did not explore the long term viability of monitoring (seed) and does not explore the need for monitoring (seed) genetic quality assurance for seed processing although the inventory management principles can be applied to seed storage.

Kimani and Githinji (2021) analyzed the risk monitoring techniques effect on water utilities performance by studying how firms tracked their service delivery performance and infrastructure failures and water quality standards. The study embraced descriptive research design. The research intended to include all 95 water utility administrators from county water corporations in Kenya as its research participants. The study selected 80 respondents through purposive sampling methods. The research gathered data by administering structured questionnaires to participants. The research found that organizations which implemented complete monitoring systems achieved 38 percent higher customer satisfaction scores together with improved regulatory compliance results. The research results showed that systematic monitoring methods brought about better service reliability together with enhanced quality assurance. The ongoing monitoring system used by water utilities provides valuable information for seed processing operations which need to monitor environmental conditions on an ongoing basis.

RESEARCH METHODOLOGY

Research Design

A descriptive research design was adopted. Descriptive designs are compelling when the goal is to obtain quantifiable information from a specific population and use this information to explain relationships among variables at a particular time (Creswell & Creswell, 2022). This design is suitable since it allow the researcher to methodically designate and analyze the nature of the strategic risk management like risk identification, assessment, mitigation and monitoring and how they relate to the organizational performance.

Target population, Sampling Techniques and Sample Size

The research population consisted of departmental heads from all licensed seed processing companies based in Nairobi County. The Kenya Plant Health Inspectorate Service (KEPHIS) reported that there were 15 licensed seed processing companies operating in Nairobi (KEPHIS 2023). The population targeted for this research included eight departmental heads from each company who held the following positions: Human Resource Manager, Quality Assurance Manager, Production Manager, Finance Manager, Procurement Manager, Operations Manager, Research and Development Manager, and Marketing Manager. Therefore, the total target population was 120 departmental heads across the 15 seed processing companies. The research conducted a census method because the study population size and availability of participants made

their research target population manageable. The research needed to study all 120 departmental heads from 15 seed processing companies because researchers wanted to obtain complete information about the entire group. The study included all 120 departmental heads as research participants.

Data Collection and Analysis

The primary data collection instrument was semi-structured questionnaires dispatched via drop and pick method. Data analysis was done using SPSS version 27, a program ideally suited for descriptive and inferential statistical data analysis. Descriptive statistics include means, percentages, standard deviation, and dispersion measures that show the trends and variability of data. The regression and correlation analyses studied how strategic risk management elements linked to each other and affected business outcomes. The research assessed risk identification, assessment, mitigation and monitoring both individually and in combination to determine their effects on performance indicators through multiple regression analysis.

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where:

Y represents the performance of seed processing companies (dependent variable),

$X1$ represents risk identification,

$X2$ represents risk assessment,

$X3$ represents risk mitigation,

$X4$ represents risk monitoring,

$\beta 0$ denotes constant

$\beta 1$, $\beta 2$, $\beta 3$, and $\beta 4$ denotes coefficients for the corresponding independent variables,

ϵ stand for error term.

RESEARCH FINDINGS AND DISCUSSIONS

This study was primarily motivated to investigate the effect of strategic risk management on the performance of seed processing companies in Nairobi City County, Kenya

Correlational Analysis

A Pearson correlation analysis was conducted to examine the strength and direction of the linear relationships among the study variables: risk identification, risk assessment, risk mitigation, risk monitoring, and organizational performance.

Table 1: Pearson Correlation Matrix

	RI	RA	RM	RMon	OP
Risk Identification (RI)	1.000				
Risk Assessment (RA)	0.618**	1.000			
Risk Mitigation (RM)	0.594**	0.641**	1.000		
Risk Monitoring (RMon)	0.571**	0.609**	0.627**	1.000	
Org. Performance (OP)	0.673**	0.701**	0.684**	0.712**	1.000

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

Source: Field Data (2026)

The correlation matrix in Table 1 reveals that all four independent variables are significantly and positively correlated with organizational performance at the 0.01 significance level (two-tailed). Risk monitoring demonstrated the strongest correlation with organizational performance ($r = 0.712$, $p < 0.01$), suggesting that continuous oversight and real-time surveillance of risks are most closely associated with improved organizational outcomes. Risk assessment exhibited the second strongest correlation with performance ($r = 0.701$, $p < 0.01$), affirming that structured evaluation of identified risks is a powerful predictor of organizational effectiveness. Wambua and Kilonzo (2021) similarly found that standardized risk assessment protocols in dairy processing significantly improved performance consistency.

Risk mitigation also showed a strong positive correlation with organizational performance ($r = 0.684$, $p < 0.01$), supporting the argument by Kibet, Chepkwony, and Bett (2020) that well-implemented mitigation strategies in agricultural processing environments lead to more consistent production and better financial outcomes. Risk identification was positively and significantly correlated with performance ($r = 0.673$, $p < 0.01$), confirming that firms with robust risk detection systems achieve better operational and financial results. Mwangi and Ngugi (2020) noted similar patterns in Kenyan manufacturing contexts, where early identification of operational risks was linked to improved efficiency and reduced loss incidents.

Model Summary

Multiple regression analysis was conducted to determine the combined and individual predictive effects of the strategic risk management variables on organizational performance. The model summary is presented in Table 2.

Table 2: Model Summary Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.863	0.745	0.735	0.463

Source: Field Data (2026)

The model summary in Table 2 presents the key statistical indices of the regression model. The correlation coefficient (R = 0.863) indicates a strong positive association between the combined strategic risk management variables; risk identification, risk assessment, risk mitigation, and risk monitoring and organizational performance. The coefficient of determination (R^2 = 0.745) demonstrates that approximately 74.5% of the variance in organizational performance is explained by the four predictor variables jointly. The Adjusted R^2 of 0.735 accounts for the number of predictors in the model and confirms that the explanatory power of the model remains high after this adjustment. The standard error of the estimate stands at 0.463, reflecting acceptable model precision. These findings suggest a highly robust regression model and are consistent with Kamau, Mutiso, and Onyango (2019), who reported comparable explanatory power in their study of quantitative risk assessment practices in Kenyan pharmaceutical manufacturing, where structured risk management variables explained a large proportion of performance variance.

Analysis of Variance (ANOVA)

ANOVA was used to test the overall statistical significance of the regression model. The results are presented in Table 3.

Table 3: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	63.842	4	15.961	74.521	0.000
Residual	23.826	111	0.215		
Total	87.668	115			

Source: Field Data (2026)

Table 3 presents the ANOVA results indicating that the regression model is statistically significant (F = 74.521, p = 0.000). This F-statistic, well above the conventional threshold at the 0.05 significance level, confirms that the combined effect of risk identification, risk assessment, risk mitigation, and risk monitoring on organizational performance is not attributable to chance. These results are in line with the conclusions of Singh, Kumar, and Sharma (2019), whose study of risk management capabilities in manufacturing contexts yielded a highly significant F-statistic, affirming the validity of regression-based approaches to studying risk management and performance relationships in production-oriented firms.

Regression Coefficients

The regression coefficients indicate the specific contribution of each independent variable to the prediction of organizational performance. Table 4 presents the coefficients from the multiple regression analysis.

Table 4: Regression Coefficients Results

Predictor Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	Beta		
(Constant)	0.621	0.284		2.187	0.031
Risk Identification	0.274	0.083	0.289	3.301	0.001
Risk Assessment	0.319	0.091	0.332	3.505	0.001
Risk Mitigation	0.293	0.087	0.308	3.368	0.001
Risk Monitoring	0.341	0.095	0.354	3.589	0.000

Source: Field Data (2026)

From the regression coefficients in Table 4, the multiple regression equation takes the form:

$$\mathbf{Y = 0.621 + 0.274X_1 + 0.319X_2 + 0.293X_3 + 0.341X_4 + \varepsilon}$$

Where: Y = Performance of seed processing companies; X_1 = Risk Identification; X_2 = Risk Assessment; X_3 = Risk Mitigation; X_4 = Risk Monitoring; ε = Error Term

The constant value (β = 0.621, p = 0.031) indicates a baseline level of performance of seed processing companies that exists independently of the strategic risk management variables. Each of the four predictor variables made a statistically significant and positive contribution to organizational performance.

Risk identification registered an unstandardized coefficient of β = 0.274 (Beta = 0.289, t = 3.301, p = 0.001), indicating a statistically significant and positive relationship with organizational performance. This finding suggests that seed processing companies which consistently identify potential risks across financial, production, and market dimensions achieve superior performance outcomes. Mwangi and Ngugi (2020) support this conclusion, demonstrating that structured risk identification frameworks enhance operational efficiency and reduce unplanned disruptions in Kenyan manufacturing environments.

Risk assessment produced an unstandardized coefficient of β = 0.319 (Beta = 0.332, t = 3.505, p = 0.001), making it the second-strongest predictor of organizational performance among the study variables. This implies that seed processing companies that rigorously evaluate and prioritize identified risks using structured tools such as risk matrices, vulnerability assessments, and seasonal risk reviews experience significantly better performance outcomes. Njoroge, Wachira, and Kiragu (2020) validated this finding, reporting that the use of risk matrices in transport logistics was associated with enhanced operational performance, a conclusion applicable to the structured production environment of seed processing.

Risk mitigation demonstrated a significant and positive effect on organizational performance (β = 0.293, Beta = 0.308, t = 3.368, p = 0.001). This indicates that seed processing companies with comprehensive mitigation strategies; including action plans, contamination controls, staff training, preventive maintenance, and emergency protocols is better positioned to sustain operational stability and achieve performance targets. Chen, Zhang, and Wang (2021) support this finding, demonstrating that systematic mitigation strategies in Chinese seed enterprises led to significant improvements in quality performance.

Risk monitoring emerged as the strongest predictor of organizational performance among all the study variables (β = 0.341, Beta = 0.354, t = 3.589, p = 0.000). This finding demonstrates that continuous, systematic surveillance of risks and mitigation outcomes is the most consequential strategic risk management practice for performance enhancement in seed processing companies. Njuguna, Njihia, and Waititu (2019) affirmed this conclusion, finding that predictive analytics-driven risk monitoring in insurance significantly improved performance and loss prevention in Kenya.

Conclusion

The study concludes that risk identification exerts a significant and positive effect on the performance of seed processing companies in Nairobi City County. Organizations that systematically detect, categorize, and document operational, financial, production, and market risks in the early stages are better positioned to prevent quality failures, reduce unplanned disruptions, and maintain regulatory compliance. The research remarks that risk assessment significantly and positively enhances organizational performance. The structured evaluation of identified risks in terms of their likelihood, impact, and organizational vulnerability allows seed processing companies to allocate resources efficiently, prioritize mitigation actions appropriately, and make more informed strategic decisions. The study remarks that risk mitigation has a significant positive effect on organizational performance. Comprehensive mitigation strategies that span preventive controls, staff capacity building, contingency planning, and policy enforcement are essential for maintaining seed quality, protecting revenues, and ensuring regulatory compliance. The study concludes that risk monitoring is the most potent driver of organizational performance among the strategic risk management practices examined. Continuous, systematic, and technology-supported risk surveillance enables seed processing companies to respond to emerging threats in real time, uphold accountability, enhance transparency, and demonstrate compliance with regulatory requirements.

Policy Recommendations

The Kenya Plant Health Inspectorate Service (KEPHIS) and the Agriculture and Food Authority (AFA) should develop and regularly revise clear, sector-specific guidelines for risk identification and assessment in seed processing, including minimum standards for risk documentation, seasonal risk reviews, and mandatory use of contamination control protocols.

The national government and county governments should invest in subsidized technical training programs for risk management practitioners in the seed processing sector, with a focus on technology adoption for risk monitoring, data-driven risk assessment, and mitigation planning. Public-private partnerships between industry associations, academic institutions, and regulatory bodies should be promoted to develop shared risk intelligence platforms that allow seed processing companies particularly small and medium enterprises to access early warning information on emerging production, market, and regulatory risks.

Limitations and Future Research Direction

This study examined the effect of strategic risk management; encompassing risk identification, risk assessment, risk mitigation, and risk monitoring on the organizational performance of seed processing companies in Nairobi City County. Several avenues for further research are suggested based on the limitations and findings of this study. Future research should extend the geographic scope to include seed processing companies in other counties across Kenya, particularly those in agricultural zones with distinct risk profiles such as the Rift Valley or coastal regions. The regression model in this study explained 74.5% of the variance in organizational performance, indicating that approximately 25.5% of the performance variance is attributable to factors not captured within the current framework. Future studies should explore additional determinants such as corporate governance quality, supply chain integration, technological innovation, and market diversification strategies as complementary drivers of performance.

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