

# INFLUENCE OF MARKET AVAILABILITY FACTORS ON THE ADOPTION OF SELECTED MODERN MARKETING PRACTICES AMONG MANGO PRODUCERS IN MAKUENI COUNTY, KENYA

Ooga<sup>1</sup>, D.M.\*, Mugambi<sup>2</sup>, J., and Muraya<sup>3</sup>, M.

<sup>1</sup> Ph.D. Student, AGECE, AGBM, & AGEX, Chuka University, Tharaka Nithi, Kenya

<sup>2</sup> Senior Lecturer, AGECE, AGBM, & AGEX, Chuka University, Tharaka Nithi, Kenya

<sup>3</sup> Senior Lecturer, Plant Science, Chuka University, Tharaka Nithi, Kenya

## ABSTRACT

Studies suggest that mango production accounts for 40% of the global fruit production. However, current adoption of modern marketing practices is still low among mango producers. The study sought to establish the factors influencing the levels of utilization of innovative marketing strategies among mango producers in Makueni County. The study used a descriptive survey design targeting 28982 mango producers with a sample size of 395 farmers selected by a stratified random sampling technique. A structured questionnaire was administered, with a reliability coefficient ranging from 0.7 to 0.90. Data was analyzed through SPSS (version 26) tools that yielded descriptive (percentage, frequencies, and modes) and inferential statistics (binary logistic regression). Binary logistic regression analysis indicated a moderately good model fit (Cox & Snell  $R^2 = 0.021$ ; Nagelkerke  $R^2 = 0.030$ ). Market availability factors, such as competitors' presence, significantly influenced the adoption of promotional campaigns ( $B = 1.234$ ,  $S.E. = 0.502$ ,  $Wald = 6.050$ ,  $p = 0.014$ ,  $OR = 3.43$ ). The results suggested that other factors not included in the model could have influenced marketing practice adoption. The study showed that most producers (92.2%) were involved in farmer-to-farmer marketing at a relatively high level, while 74.7% (high level) were actively involved in local markets. Cooperative marketing was relatively moderate (42.9%) and low (39.9%). Moderate levels of product differentiation were taken up by 39.9% of the producers, although 19.8% of the producers indicated very low adoption levels. The level of branding adoption was moderate for a larger percentage of the producers (59.7%), although few of the producers (5%) ventured into branding at very high levels. Pricing strategies were moderately adopted by 82.3% of the producers. Distribution and promotional campaigns were not as effective; they had relatively low to very low percentages of producers within the respective adopter categories: very low (19.8%) and 34.9% of adopters, respectively, and low (32.8% and 22.5% of low adopters, respectively). Market/export orientation was the least adopted, with 47.7% for the very low category. Therefore, it is essential to improve market availability and accessibility, a key to raising the rates of modern marketing practice adoption. Additionally, there should be proper market structures and optimal value addition procedures.

**Keyword:** Mango production, Modern marketing practices, Market availability, Descriptive survey design, Adoption, Market participation

## 1. INTRODUCTION

Mango is an important fruit with enormous value in the agricultural sector and economy of many countries where it is cultivated. The largest producers of mango are India, China, Thailand, and Mexico, contributing 60–70 percent of global production (Muriithi et al., 2020; Wangu et al., 2020). Mango production is mainly done in Asia with 78%, while Africa and the Americas have 14% and 8%, respectively (Wangu et al., 2020). Particularly, mango marketing has faced critical problems, especially in marketing and market access. Small to medium-scale growers, particularly

those exporting to the European market, experience quality constraints that slow their ability to compete favorably (Asare-Nuamah et al., 2022; Ncube et al., 2020). Countries like France, Germany, the UK, Peru, and the Netherlands are major export destinations, demanding more consistent quality, which is a problem for many smallholder producers (Borychowski et al., 2020).

Small-scale mango farmers in Kenya and several other African countries consequently sell their produce to nearby market centers, which are often characterized by major swings in market price and limited marketing outlets (Ayyaz et al., 2019; De Corato, 2020). This reliance, however, limits the producer's ability to directly sell their produce to consumers and a few retailers, affecting their profitability (Lucas, 2020; Musyoka et al., 2021). Transportation methods also differ and include the use of pack animals and humans. Additionally, the marketing infrastructure is still very limited, especially for marketers coming from rural areas, thus the challenges of accessing the markets and getting to the consumer (Wangu et al., 2020).

In Uganda and Tanzania, mango producers mainly sell their produce in open markets, farm-gate, or small-scale marketers; hence, low market value and poor mango fruit quality (Mwungu et al., 2020; Nyamu, 2020). Mango production in Kenya is a crucial subsector within the country's agriculture sector and generates approximately 2% of Kenya's GDP, and the leading producer county is Makueni (Mairura, 2019; Karienyne, 2020). However, despite being the largest mango exporter in East Africa, Kenya faces diverse challenges in the market and marketing systems, especially in accessing the local and international markets (Muriithi et al., 2020). The international market competition is coupled with local competition, and local sales contribute to more than 94% of mango trade in Makueni County (Reporter, 2024).

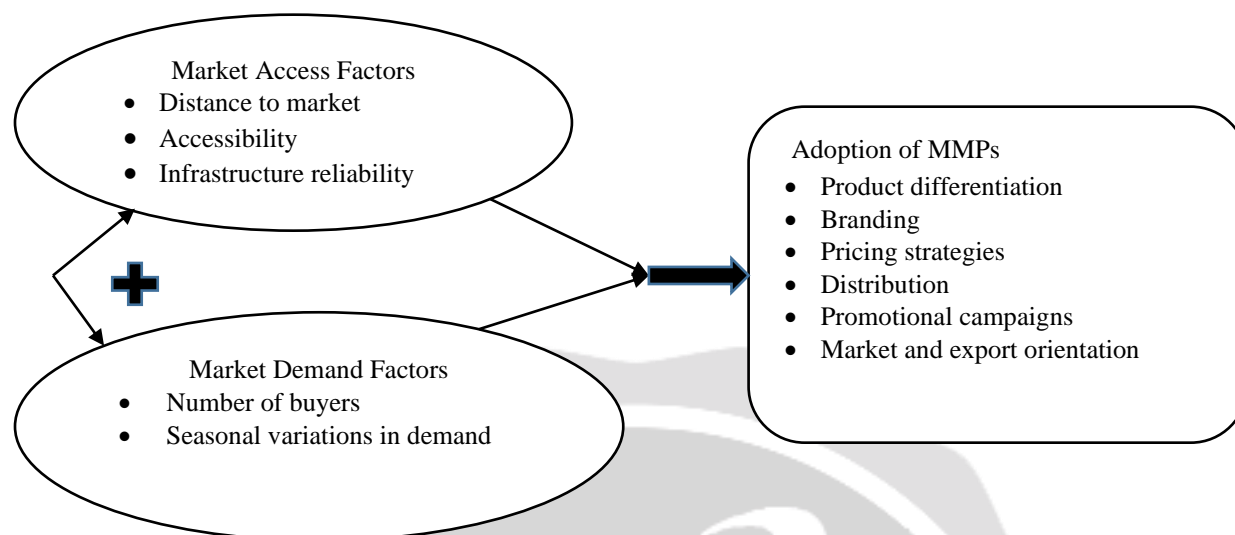
Currently, Kenyan mangoes compete with mangoes from other countries such as India, Pakistan, and Mexico, who are major competitors that make many of the farmers continue practicing traditional marketing (Karienyne, 2020; Musyoka et al., 2021). While traditional marketing practices have relatively low transaction costs, they lead to limited market opportunities and inefficiencies. This has led to income disparities and failure to realize competitiveness and possible growth in the global market (Ayyaz et al., 2019). Prior studies indicate an increased demand for improved marketing strategies aimed at increasing access to markets and subsequently the profitability of the mango producers. However, many such studies are based on national or regional scale, and little attention has been paid to local-level constraints among mango producers (Singh, 2023).

### **1.1 Research Question**

How do market availability factors influence the adoption of modern marketing practices?

### **1.2 Conceptual Framework**

The conceptual framework analyzed market availability factors that determine the use of modern market practices by mango producers. Market reach constraints like distance to market and market accessibility are instrumental in how well producers can market their fruits to the target markets. For instance, short distances mean that farmers can easily access markets; thus, in a bid to attract more consumers to purchase their commodities, they adopt techniques such as product differentiation and branding (Singh, 2023). On the other hand, structural factors of market size and the number of prospective consumers affect market-driven factors and the producer's pricing methods. A large number of potential buyers has the capability to force the producers to embark on promotions and distribution efforts to capture the market share, and fluctuations in demand may indeed necessitate better pricing and branding strategies to sustain market share (Karienyne, 2020). Overall, these market availability factors shape the market conditions that determine the extent of modern marketing practices employed by producers, thereby determining the producers perceived market success and viability (Musyoka et al., 2021).



**Figure 1: Conceptual Framework**

## 2. METHODOLOGY

### 2.1 Study Area and Participants

The study was conducted in Makueni County, Kenya, where mango production is relatively high. The county occupies a land area of 8,008.9 square kilometers and a population of 987,653 (Census, 2019). The study employed stratified random sampling based on three groups: small-scale, medium-scale, and large-scale producers, targeting a population of 28,982 mango producers. Consequently, a sample size of 395 producers was drawn based on Kothari's (2004) formula.

### 2.2 Data Collection and Analysis

Data was collected from the producers using a structured questionnaire comprising demographic characteristics and market availability factors, such as number of potential customers, fluctuation of market demand, and distance to the nearest market, reliability of market infrastructure, other competitors, and accessibility of transport. A pilot test involving 40 respondents (10% of the sample) was conducted in Tharaka Nithi County to pretest the research instrument. The validity of the data collection instrument was established by matching items with study objectives, while the reliability coefficient was 0.8. Data was analyzed using the statistical package for social sciences (SPSS, version 26). Descriptive statistics (percentage, frequencies, and modes) were used to describe and summarize data. Inferential statistics, such as binary logistic regression, were used to analyze the influence of market availability factors on the adoption of modern marketing practices. Diagnostic tests helped to check the model's assumptions, including linearity, absence of multicollinearity, and normality assumptions.

## 3. RESULTS AND DISCUSSION

A 100% questionnaire response rate was achieved, indicating credibility of the findings (Hagos et al., 2020). Analysis of age distribution revealed that 37.8% of producers are aged 46-55 years, proving that the old farmers are dominant in mango farming (Midingoyi et al., 2019; Gichungi et al., 2021). Gender distribution revealed that most of the participants are males, accounting for 67.6%; this implies that there is a skewed gender distribution in the sector (Abate et al., 2019; Asare-Nuamah et al., 2022). Approximately 33% of the respondents had more than 21 years of farming; hence, experience could result in rejection of modern marketing practices (Abate et al., 2019; Hagos et al., 2020). Most producers had attained secondary education (47.6%) and college level (40%), which could facilitate the adoption of modern marketing. Analysis of income sources showed a marginal dominance of informal income sources (54.9%), which could affect the producer's capability to adopt modern practices of marketing

(Abegunde et al., 2019; Agrawal, 2022). Many farms are small; 83.3% of producers cultivate 0-9.5 acres; hence, they may not afford modern marketing (Abate et al., 2019; Ermias, 2021). Most producers had between 0 and 50 mango trees (50.9%), and this means low marketing capacity (Abate et al., 2019). About 51.9% of the total mango production falls in the range of 0-5000 kg, which is suggestive of possible constraints to effective use of modern marketing techniques (Gichungi et al., 2021).

### 3.1 Adoption of various Marketing Practices

Mango producers were prompted to rate their responses on a Likert scale (1 = very low, 2 = low, 3 = moderately, 4 = high, and 5 = very high), as shown in Appendix 1. The study showed that most producers (92.2%) were involved in farmer-to-farmer marketing at a relatively high level, while 74.7% (high level) were actively involved in local markets. Cooperative marketing was relatively moderate (42.9%) and low (39.9%). Moderate levels of product differentiation were taken up by 39.9% of the producers, although 19.8% of the producers indicated very low adoption levels. The level of branding adoption was moderate for a larger percentage of the producers (59.7%), although few of the producers (5%) ventured into branding at very high levels. Pricing strategies were moderately adopted by 82.3% of the producers. Distribution and promotional campaigns were not as effective; they had relatively low to very low percentages of producers within the respective adopter categories: very low (19.8%) and 34.9% of adopters, respectively, and low (32.8% and 22.5% of low adopters, respectively). Market/export orientation was the least adopted, with 47.7% for the very low category. Tables 1 and 2 show the mode, frequency, and percentage of adoption levels.

Table 1: Mode scores for the adoption of various marketing practices

Marketing Practices	Mode
Farmer-to-farmer direct sales	4.00
Local market participation	4.00
Cooperative marketing	3.00
Product differentiation	3.00
Branding	3.00
Pricing strategies	3.00
Distribution (local and international distributors)	3.00
Promotional campaigns (advertisement, and trade shows and exhibitions)	1.00
Market and export orientation (market research, standardization, and certification)	1.00

Table 2: Frequency and percentage distribution for adoption of various marketing practices

Marketing Practices	Yes		No	
	Freq.	%	Freq.	%
Farmer-to-farmer direct sales	290	73.4	105	26.6
Local market participation	389	98.5	06	1.5
Cooperative marketing	25	6.3	370	93.7
Product differentiation	29	7.3	366	92.7
Branding	27	6.8	368	93.2
Pricing strategies	135	34.2	260	65.8
Distribution	26	6.6	369	93.4
Promotional campaigns	41	10.4	354	89.6
Market and export orientation	03	0.8	392	99.2

The results revealed that farmer-to-farmer direct sales had a mode of 4.00, indicative of a high usage. This means that most of the mango producers (73.4%, n = 290) in Makueni County use this marketing channel often by directly selling their produce to other producers and consumers. This high adoption rate indicates that direct sales are highly preferred because they are easy and producers are likely to fetch better prices without middlemen. Dlamini-Mazibuko et al. (2019) suggest that direct selling cuts out middlemen, yielding better profits for smallholder producers. This high adoption could also be as a result of the experienced trust and the relations existing with the local producers; hence, the products sell faster without passing through the various channel intermediaries. This



finding is also in support of prior research findings on the role that local networks play in marketing produce, especially in the agricultural sector (Muthini et al., 2017).

Similarly, the mode of participation in the local market was 4.00, indicating a high level of activity within this group. The results also indicated that a large population of mango producers (98.5%,  $n = 389$ ) were involved in marketing their crops in the local markets. This implies that markets in the locality are fairly accessible, a factor that indicates that mangoes have ready market outlets. This finding agrees with that of Abate et al. (2019), establishing that the distance to nearby markets affects the degree of inclusion due to lower transportation expenses and better access to markets. According to Agrawal (2022), local markets have more value to the local producers due to the guaranteed market for their produce and better prices compared to those offered in other distant markets. The mode for cooperative marketing was 3.00, which implies a moderate level of practice.

Organizational cooperatives attract a number of benefits, such as the bargaining of power, information about markets, and pool of resources to be used for marketing and distributing products. However, the low adoption shows that not all the producers were making the best out of the potential benefits from cooperative movements. Only 6.3% ( $n = 25$ ) of mango producers marketed their produce via cooperatives. This low adoption rate suggests inadequate trust either in cooperatives or in adequate cooperative structures. Ermias (2021) discussed that cooperative marketing is only successful based on the cooperative management efficiency and the perceived benefits to the members. Similarly, Ermias (2021) affirmed that even as the cooperatives enhance market access and price for the producers, their function depends on good governance and producers' participation.

Product differentiation also had a mode score of 3.00, implying moderate use by producers. This practice comprises sorting the fruits by their quality, type, or other features referring to the species. Whereas product differentiation is the basis for developing high prices and customer loyalty, it involves extra information and capital, which may explain why this strategy is less applied in Makueni County (7.3%,  $n = 29$ ). Mehdi et al. (2020) argued that product differentiation is the key to penetrate the highest-level markets, yet it comes with increased costs on quality assurance and brand promotion. The results are indicative of an inability for rural producers to use and/or their lack of ability to differentiate their produce in the market. Musyoka et al. (2020) opined that product differentiation involves the enhancement of quality and a branding process, a practice that can be difficult to be accomplished by smallholders. The mode score for branding was at 3.00, suggesting very moderate levels of adoption. Labeling is useful in branding, which entails coming up with a trade mark for the mangoes in a bid to ensure market recognition. However, only 6.8% ( $n = 27$ ) of producers had adopted branding practices partially through integrated pest management and organically produced fruits, indicating there may have been a lack of awareness and training. Gichungi et al. (2021) substantiate this finding by proposing that branding as an instrument can greatly contribute to market access and profitability; however, a comprehensive and prolonged professional approach is needed.

Pricing strategy had a mode of 3.00, indicating a moderate practice. Pricing strategies can be effective if properly applied to increase the farmer's revenue and cope with competitors. Yet, the moderate usage pointed to the possibility that most of the producers still relied on the conventional ways of setting prices rather than those with value-based pricing, competitive pricing, and premium pricing. As it was observed by Musyoka et al. (2020), the implementation of complex pricing techniques is sometimes limited by insufficient information and farmer's training. The pricing strategy was used by 34.2% ( $n = 135$ ) of the producers, meaning a moderate practice. This raises the possibility of a high level of producers' awareness of the value of strategic pricing for the generation of the highest revenues. This finding aligns with Hagos et al.'s (2020) demonstration of the efficiency of the pricing approaches in informing producers on how to address the market disposition and competitors. While the mode for distribution practices was 3.00, denoting low distribution practices among the producers, with only 6.6% ( $n = 26$ ) adopters. This result indicated that producers may have encountered high transport costs or poor access to efficient distribution channels. This finding is emphasized by Hagos et al. (2020), who observed that efficient distribution networks are vital for penetrating a larger consumer base, but they entail high costs and network infrastructure.

Promotional campaigns received a mode value of 1.00, signaling that most mango producers in Makueni County did not frequently carry out activities such as advertising, marketers' fairs, or exhibitions. Only 10.4% ( $n = 41$ ) of mango producers conducted promotional campaigns. This low adoption rate could be due to the costs of promotions or a lack of know-how in marketing. This could be taken to mean that most of these activities are expensive and producers do not fully appreciate the importance of these activities. De Corato (2020) noted that one of the advantages of promotional campaigns is that they substantially increase the level of sales and market access;

however, such actions are costly and demand adequate resources and planning, which may be inapplicable for most of the small-scale producers. Market and export orientation also received a mode score of 1.00, depicting lower adoption where only 0.8% ( $n = 3$ ) of the producers were certified and contracted to supply their mango to local supermarkets. Market and export orientation entails the process of market research, implementation of quality standards, and acquisition of quality certification demanded in export markets. This shows that very few producers can employ these practices; thus, most producers do not use such practices. As noted by Asare-Nuamah et al. (2022), market orientation and export readiness attract a lot of capital through investment in knowledge and infrastructure besides meeting international standards, which is a problem for smallholder producers.

### 3.2 Influence of Market Availability Factors on the Adoption of Modern Marketing Practices

The influence of market availability factors on the adoption of modern marketing practices was assessed on a Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). From the findings in Appendix 5, a majority of mango producers held the view that the extent of the perceived demand (potential buyers) and seasonal variations in market demand affected their uptake of modern marketing practices positively, with 44.2% and 49.3% agreeing, respectively. A considerable percentage of the producers were neutral on such factors as distance to the nearest market (45.0%) and transport accessibility (60.1%). Similarly, the reliability of market infrastructure was evidenced to have diverse reactions, with 39.4% agreeing and 45.5% remaining neutral. On the one hand, market competitors also had neutral views on the effects on modern marketing practice adoption, with 46.9% agreeing and 47.9% remaining neutral. Almost all the producers perceived a positive influence of market availability factors, with only a handful strongly disagreeing, implying that these factors were pertinent in embracing modern marketing practices. Table 3 provides a modal distribution of the mango producers' perceptions on the influence of market availability factors on the practice of modern marketing.

Table 3: Market availability and the adoption of modern marketing practices

Statement	Mode
Adoption of modern marketing practices is influenced by the number of potential buyers in the market.	4.00
Adoption of modern marketing practices is influenced by seasonal variations in market demand.	4.00
Adoption of modern marketing practices is influenced by distance to the nearest market.	3.00
Adoption of modern marketing practices is influenced by transportation accessibility.	3.00
Adoption of modern marketing practices is influenced by reliability of market infrastructure (such as roads, electricity, etc.).	3.00
Adoption of modern marketing practices is influenced by of other competitors' presence in the market.	3.00

The mode score for the statement, "adoption of modern marketing practices is influenced by the number of potential buyers in the market," was 4.00. This indicates that the majority of the producers believed that the prospects of having many potential buyers impacted their decision to implement these modern marketing practices. The mode for the statement, "adoption of modern marketing practices is influenced by seasonal variations in market demand" was also 4.00. This creates the impression that the variation of demand due to the change in seasons greatly impacts the level of compliance with modern marketing trends among mango producers. While the response to the statement "adoption of modern marketing practices is influenced by distance to the nearest market" had a mode of 3.00. This shows that there was no positive or negative perception toward the impact of distance to market on the adoption of modern practices. Similarly, accessibility of transportation to the market had a mode of 3.00. This implies an average or no effect of transportation accessibility on the use of modern marketing practices. For the statement, "adoption of modern marketing practices is influenced by reliability of market infrastructure, including the roads, electricity, and the like," it received a mode of 3.00. Thus, this neutral relationship suggests that the reliability of the market infrastructure was not a decisive parameter towards the use of modern marketing techniques. The mode of the statement "adoption of modern marketing practices is influenced by of other competitors' presence in the market" was 3.00, indicating a neutral point of view among the producers regarding the influence of market competition on their marketing activities.

The high mode value in the perception of producers shows that a greater number of potential consumers is one of the key drivers of adopting modern marketing practices. This finding is supported by Abate et al. (2019), who found out that market size and number of buyers influenced the marketing strategies among smallholder producers. This also implies that mango producers in Makueni County are willing to employ appropriate marketing practices to meet the expanding global market niches, as indicated by Hagos et al. (2020). This means that the mango producers are adjusting their promotional techniques to cope with market fluctuations. The findings are emphasized by Akrong et

al. (2023) on the importance of understanding issues related to market demand in the context of marketing management. This attests to the fact that marketing is a proactive process that has to be aligned to the standard signals of seasonality to ensure that producers begin preparing for such instances as a way of optimizing both their time and resources (Kaleeswaran et al., 2019).

The neutral mode value indicates that the distance from the nearest market matters, albeit reported as a less influential aspect. This finding is in contravention of Muthini et al.'s (2017) findings on the factors that influence producers' market channel decisions, where it was shown that market distance plays a vital role. In Makueni County, other constraints could be more critical in the logistics or infrastructure that should be addressed to enhance market access (Githumbi, 2022). The neutral response regarding the accessibility of transportation implies that though transportation is a factor, it does not play a very significant role in the adoption of modern marketing strategies. This could be as a result of other transportation modes being available or other considerations dominating the disposal. The study findings complement those of Agrawal (2022), emphasizing that an enhancement of transportation structures relates to market participation. This weak emphasis also means that although infrastructure is an important element, it might not be at the center of decisions concerning the acceptance of modern marketing practices. This is contrary to Borba (2021), who underlined that the reliability of market infrastructure is essential for efficient operations. With regard to Makueni County, it could be that the reliability of infrastructure is sufficient, or there are other circumstances that it can be deemed unimportant. The neutral mode indicates that though competitors are present, it does not pose a particular influence on the adoption of modern marketing tools among mango producers. These findings differ from those of Dlamini-Mazibuko et al. (2019), who stated that competition plays a crucial role in defining the marketing plans. Thus, the effects of competition may be less severe in Makueni County, which may be either due to market saturation or some other reason.

### 3.3 Binary Logistic Regression Analysis of Market Availability Factors and Adoption of Modern Marketing

A binary logistic regression test was conducted to analyze the influence of several market availability factors on the adoption of marketing practices. The dependent variable included farmer-to-farmer direct sales, local market participation, cooperative marketing, product differentiation, branding, pricing strategies, distribution, promotional campaigns, and market and export orientation. The independent factors that were considered included the distance to the nearest market, number of potential buyers, seasonal variations in demand, accessibility of transportation, reliability of market infrastructure, and other competitors in the market. Binary logistic regression analysis indicated a moderately good model fit (Cox & Snell  $R^2 = 0.021$ ; Nagelkerke  $R^2 = 0.030$ ). Market availability factor, such as competitors' presence significantly influenced the adoption of promotional campaigns ( $B = 1.234$ ,  $S.E. = 0.502$ ,  $Wald = 6.050$ ,  $p = 0.014$ ,  $OR = 3.43$ ). The results suggested that other factors not included in the model could have influenced marketing practice adoption. Overly, Menard (2002) noted that low R square values in logistic regression do not necessarily mean that a dataset has a poor model fit. Specifically, the predictive power of logistic regression models in social sciences is low because of the intrinsically high complexity of the social phenomena being explained (Menard, 2002; Hosmer Jr et al., 2013). According to Rogers et al. (2014), the adoption of new practices depends on many factors, which are social, economic, and even cultural factors.

## 4. CONCLUSIONS

The study sought to establish market availability factors that influence the adoption of modern marketing practices among the mango producers in Makueni County, Kenya. Such factors as the number of potential buyers and seasonal variations in the market demand were critical in the adoption of modern marketing practices. While other factors like distance to the nearest market, accessibility of transportation, reliability of market infrastructure, and the presence of competitors exerted a neutral and insignificant positive influence. Thus, the findings implied that some of the market availability factors were perceived as crucial while others could be enhanced by market structure and transport facilities.



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**APPENDICES**

**Appendix 1: Adoption of Modern Marketing Practices (%)**

Category (%)	Farmer-to-farmer marketing	Local market participation	Cooperative marketing	Product differentiation	Branding	Pricing strategies	Distribution	Promotional campaign	Market/export orientation
Very low	0.0	0.0	7.3	19.8	5.0	5.0	19.8	34.9	47.7
Low	0.0	4.8	39.9	32.8	22.8	0.0	32.8	22.5	39.7
Moderately	5.3	10.1	42.9	39.9	59.7	82.3	37.6	32.9	12.6
High	92.2	74.7	9.9	7.5	7.5	12.7	9.8	9.8	0.0
Very high	2.5	10.4	0.0	0.0	5.0	0.0	0.0	0.0	0.0
Total	100	100	100	100	100	100	100	100	100

**Appendix 2: Influence of Market Availability on the Adoption of Modern Marketing Practices (%)**

Category (%)	Adoption of modern marketing practices is influenced by the number of potential buyers.	Adoption of modern marketing practices is influenced by seasonal variations in market demand.	Adoption of modern marketing practices is influenced by the distance to the nearest market.	Adoption of modern marketing practices is influenced by the accessibility of transportation to the market.	Adoption of modern marketing practices is influenced by the reliability of infrastructure (roads, electricity, etc.).	Adoption of modern marketing practices is influenced by the presence of competitors in the market.
Strongly disagree	0.0	0.0	0.0	0.0	0.0	0.0
Disagree	15.6	0.0	7.5	0.0	12.6	5.2
Neutral	25.6	39.9	45.0	60.1	45.5	47.9
Agree	44.2	49.3	45.0	37.4	39.4	46.9
Strongly agree	14.8	10.8	2.5	2.5	2.5	0.0
Total	100	100	100	100	100	100