

## **Impact of Marketing Tactics on the Performance of Oyster Mushroom Cultivation among Small-Scale Farmers: A Study in Mumias Division, Mumias Sub-County, Kenya**

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### **ABSTRACT**

Mushrooms, as macro-fungi capable of thriving above and below ground, are a rich source of nutrients and can be successfully cultivated within well-ventilated structures using organic substrates. China is the global leader in Oyster mushroom production, accounting for 80% of the total output, with Africa contributing relatively little. In Kenya, two mushroom species are grown: Button and Oyster, with a combined annual production of 500 tons and an additional 150 tons imported. Button mushrooms dominate production at 95%, while Oyster mushrooms represent only 5% of the total output. Among farmers, the majority (80%) focus on cultivating Oyster mushrooms, while the remaining 20% prefer Button mushrooms. Despite the availability of suitable substrates and the preference of growers, the performance of Oyster mushroom cultivation has remained suboptimal. Consequently, the impact of marketing strategies on Oyster mushroom performance has remained uncertain. This study aimed to investigate the influence of marketing strategies employed by farmers. The research was grounded in Innovation theory and guided by a conceptual framework. A descriptive research design was adopted, with a study population of 300 individuals, and a random sample of 30 respondents was selected using cluster random sampling. Data were collected through questionnaires and interview guides and analyzed using SPSS. The results revealed that 56.7% of the farmers sold mushrooms in rural open markets, while 43.3% supplied their produce to hotels and restaurants. Furthermore, 53.3% of farmers engaged in personal selling, whereas 46.7% relied on vendors for distribution. In terms of sales, 76.7% marketed mushrooms through their respective groups, while 6.7% used retailers. Regarding packaging, 96.7% of farmers utilized polythene bags, with a small proportion (3.3%) opting for bottles. On pricing, 70% sold 50gm packages for Ksh 100, while the remaining 30% offered 1kg packages priced at Kshs 2000. A significant majority (83.3%) of farmers sold processed mushrooms, while 16.7% focused on fresh mushrooms. In conclusion, the study found that existing marketing strategies had a limited impact on the performance of Oyster mushroom cultivation. The study recommends intensive training, the development of incentive schemes, the construction of cold storage facilities, and the formation of mushroom cooperatives to enhance the industry's performance. The findings of this research have implications for policymakers, mushroom growers, scholars, and researchers in the field.

**Keywords:** Mushroom, Oyster, production, marketing strategy

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### **INTRODUCTION**

Mushroom is a macrofungus which has a distinctive fruiting body and can be found growing on the ground or underground [1]. For mushroom to grow well it requires an organic substrate, rich in nutrients especially Nitrogen, Phosphorus and Potassium [2, 3]. The edible, medicinal and wild mushrooms make up the composition of worldwide

mushroom industry [4]. Mushrooms are classified under fungi kingdom and have evolved from algae. They cannot synthesize their own organic material [5]. There are in existence over 64,000 species which have been documented [6]. The existing literature show that 10,000 species can produce mushrooms, approximately 300 belong

to edible category and only 30 species are cultivated [7]. Africa could be hosting numerous species because of conducive environment, however, many could have disappeared much early before science had an opportunity to describe them [8]. Production of mushroom in the global arena, China is the leading with more than 80% of all Oyster (*Pleurotus spp*) produced while Africa is grappling with low production [9]. [10], reported that mushroom production in Africa only few cases are mentioned and rarely appears on publications. Therefore, Peter concludes that mushroom as an enterprise has been ignored, neglected and marginalized in Africa. Since production is low and consumption demand is high, this scenario creates huge opportunity for mushroom cultivation in Africa not only at subsistence level but at commercial scale to spur economic development [11]. [12], reported that mushroom has a high value with potential to catalyze economic development of a country. In Kenya, mushroom has been identified as one of high value crops which can be grown alongside with others, unfortunately only two varieties or species of mushrooms have been cultivated: Button (*Agaricus bisporus*) and Oyster (*Pleurotus spp*) and their production is also low [13]. The country is encountering constraints of realizing income growth in rural economy where many people live [14]. The average mushroom production annually is 500 metric tons while importation is 150 metric which implies that consumption demand is about 650 metric tons annually [14]. [15], in their report showed that in 2017 mushroom production was 484.5 metric tons and

consumption demand was 1200 metric tons. This implies that consumption outstripped supply at a wide pace, setting a gloom situation whether food security will be achieved and posing negative threat on achievement of worldwide Sustainable Development Goals(SDGs) particular on, '**No poverty and Zero hunger goals**', by 2030 [16]. Marketing of mushrooms has faced challenges in various countries. In India Marketing system has not been organized well, although a simple system has been adopted of producers selling directly to consumers or retailers and no serious effort has been put in place to promote the product, strengthen and expand the market [17]. Production of Oyster mushroom in Kenya raises many questions on what is actually happening with the variety. Majority of farmers are growing Oyster mushroom because of adaptability in that it grows on almost all agricultural wastes [18]. [19],in their research reported that 80% of mushroom producers grow Oyster mushroom(*Pleurotus stratus*) while 20% grow button(*Agaricus bisporus*).This report implies that the annual production of mushroom of 500 metric tons [9],Oyster mushroom contributes 5% (24 metric tons) while the contribution of button mushroom is 95%(476 metric tons). Marketing strategies if crafted and executed well can be a good vehicle in improving yield performance of Oyster mushroom and wealth creation for solepreneurs. Some of the challenges faced in selling mushroom product include lack and inaccessibility of market information, poor infrastructure, high product prices and lack of entrepreneurial skills in marketing strategies[10].

#### **Problem statement**

Mushroom enterprise if innovatively marketed can contribute immensely to the achievement of global Sustainable Development Goals (SDGs) by 2030 [13]. Global goal 2, on zero hunger, aims at ending hunger through food security, improved nutrition and promoting sustainable agriculture. Mushroom has nutritional and medicinal values also can

help reduce unemployment crisis especially in developing countries. In Kenya, production of mushrooms annually is estimated at 500 metric tons from two types of mushrooms; Button (*Agaricus bisporous*) contributes 95% and Oyster 5% [15]. The situation was worse in 2017 when production was 484.5 metric tons and consumption demand

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was 1200 metric tons [16]. Oyster mushroom was introduced to Kenya in 2003 and is popular among growers. Despite abundance of substrates and growers' preference, performance of oyster mushroom has remained low. The issues of concern were personal selling, group selling, product pricing and product packaging which were unknown,

**Significance or contribution of the study**

**i) Government of Kenya**

The study will benefit National Government and County Governments of Kenya in the formulation of relevant policies to spur mushroom production. Policies like creation of incentive schemes will motivate mushroom growers

**ii) Mushroom Farming Community**

The living standard of the people will improve particularly when consumption of mushroom product is increased, the community will benefit from nutritional and medicinal values.

**iii. Academicians and researchers**

The created knowledge is useful to scholars and researchers who are in need of new ideas for their researches. Therefore, the study has contributed to the body of knowledge or existing literature.

**Theoretical framework**

The study has been anchored on Innovation Theory. This theory was authored by Joseph Schumpeter in 1939. He describes development as a historical process of structural changes substantially driven by innovation. The innovation is basically accomplishment of creativity process. New ideas have to be produced and then

Therefore this study sought to examine the effect of marketing strategies on performance oyster for smallholder farmers in Mumias Division, Mumias Sub-County, Kenya. If the situation is not addressed in the long run the mushroom enterprise will collapse, the importation increased, nutritional and medicinal benefits shall be lost.

implemented. Innovation is divided into five types: Launch of new product, application of new methods of sales of a product, opening of a new market, acquisition of new resources of supply of raw materials or semi-finished goods and finally creating new industry structure [3].

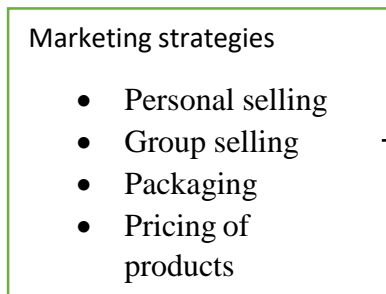
**Relevance of the theory**

The conventional or traditional methods of marketing of mushroom products may not give desired results, many consumers may not be aware of existing products of mushroom. The managing structure may not be able to cope with existing competition and positioning the products in the market .The current marketing strategies have to undergo innovation and new marketing strategies created. Therefore, the theory could assist in looking at mushroom marketing chain and review the existing strategies with a view to renovate them.

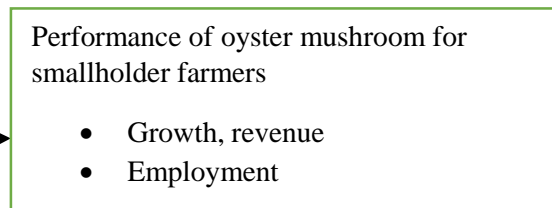
**Conceptual framework**

The conceptual framework depicts the interactions of variables in the study (Figure 1)

**Independent variable**



**Dependent variable**



Source: Researcher, 2021

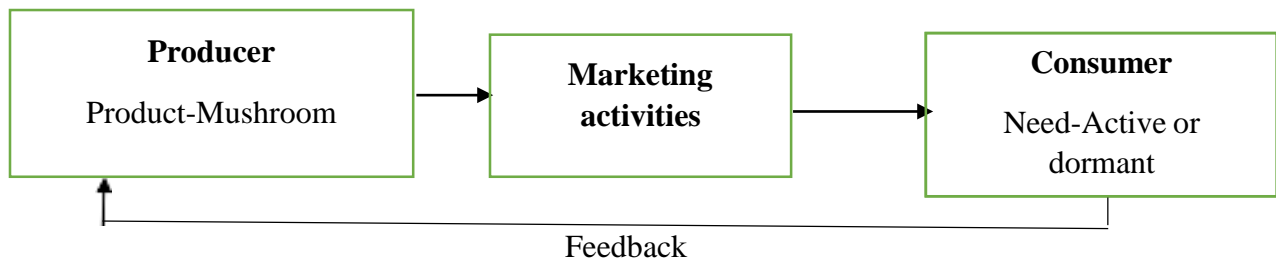
**Figure1: Relationship between independent and dependent variables**

**Literature review**

Mushroom enterprise is a desired industry worldwide and also cultivation is a global

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practice. Mushrooms are fungi, stationary organisms which belong to Fungi Kingdom since they are neither true vegetables nor animals [3]. The varieties or species of fungi worldwide are estimated at 1.5 million, 10000 do produce fruiting bodies referred to as mushroom. About 300 mushroom species have been identified as edible and 30 species have been cultivated [4]. Mushroom

industry consists of edible, medicinal and wild mushrooms [6]. Marketing of any product is very important. It is through selling of the product and making profit margin is when investment makes sense [6]. [9], refers marketing as human activities directed at satisfying needs and wants through exchange process (Figure 2).



Source: Adapted from [18]

Figure 2: Marketing

The four basic elements or variables of marketing mix are product, price, place and promotion [8]. Developing marketing strategy means directing a proper marketing mix towards a target group of customers or market segment. According to [8], packaging materials, design, colour, brand name and associated symbols can affect consumer perception. The package material can affect stipes and pileus parts of the mushroom which are delicate. [11], indicated that price of locally produced mushrooms can be expensive as high as Ksh 80 per 30gms package of dried mushrooms. Therefore it can create an impression that mushrooms constitute a luxury food, consequently a social factor which could affect mushroom production. However, low price may irrationally be associated with poor quality of the product, but make product available. [7], explains that distribution is the transfer of goods

from a producer to a consumer. It makes a lot of sense if the product gets to a consumer at the right time and in the right form or quality. He further indicates that distribution has two key components: physical distribution involving transportation, warehouses and storage, also channels of distribution which comprises of various routes used to get the product to the consumer. [9], outlines some of market strategies such as direct marketing, from producer to consumer who is the end user. Mushrooms can be sold directly to consumers at local markets, restaurants and supermarkets. When competing for local markets, excellent service, top quality and consistency in supply might help in selling the product. They also in their study found that value addition to mushroom through drying can attract premium price. The dried mushroom could be sold off season.

#### Research Methodology

The study adopted descriptive research design. The major purpose of this design is to describe the state of affairs as it exists [11]. The target population was 300 growers of mushroom and a sample of 30 (10%) participated in the study. The

cluster/area random sampling technique was employed because of dispersed population in different locations of the division [14]. The questionnaire and interview were used to collect primary data. Reliability of the research instrument was tested by

conducting pilot study with 12 respondents, face validity and content validity were improved by research experts. The analysis of data was done

by use descriptive statistics with help of Statistics Package for Social Sciences (SPSS) and results were presented using tables.

### RESULTS AND DISCUSSION

#### Market availability

A total of 17 (56.7%) mushroom growers were selling their products in rural open markets, (43.3%) mushrooms products are sold to hotels and restaurants, none is sold to foreign markets (Table 1).Therefore all mushroom products are consumed locally and none is available for export .This result is in agreement with [9]

whose report indicated that demand is more than supply. Also is in agreement with [9] who reported that mushroom products are sold in rural markets.

**Table 1: Types of markets**

Type of market	Frequency	Percent (%)	Cumulative (%)
Rural market	17	56.7	56.7
Hotels & restaurants	13	43.3	100.0
Foreign	0	0	
Total	30	100.0	

Source: Field data, 2021

#### Personal selling (Participation)

The mushroom growers involved in direct selling of their products were 16(53.3%) and those who used hawkers/vendors were 14(46.7%).This implies that majority of small-scale mushroom farmers are involved in

direct selling of their products. (Table 2). Therefore reducing services of middlemen increases revenue. The findings are in support of [8] who reported that selling directly to consumers receives better price.

**Table 2 Personal Selling**

Participation	Frequency	Percent (%)	Cumulative (%)
Involved	16	53.3	53.3
Not involved	14	46.7	100.0
Total	30	100.0	

Source: Field data, 2021

#### Distribution channels/Place

The results revealed that majority of mushroom growers used their own groups as distribution channel in selling mushroom products, 23 (76.7%). Through retailers was small

2(6.7%), and very small number through groceries 1 (3.3%).This implies that the role of selling mushroom products has been entrusted to group leadership (Table 3).

**Table 3 Distribution channel**

Type of channel	Frequency	Percent (%)	Cumulative (%)
Retailers	2	6.7	6.7
Groceries	1	3.3	10.0
Own groups	23	76.7	86.7
Missing	4	13.3	100.0
Total	30	100.0	

Source: Field data, 2021

**Packaging materials**

The findings showed that most of mushroom growers were using polythene bags, 29(96.7%) as packaging materials while very few were using bottles, 1(3.3%). This means that more polythene bags are used and if not well disposed might raise a concern on an environment (Table 4). The package is

a good market strategy. The results is in agreement with the findings of Miles(1994) who reported that packaging material, design, colour and associated symbols can attract potential buyer's perception of a product.

**Table 4. Type of package materials**

Type of materials	Frequency	Percent (%)	Cumulative (%)
Polythene bags	29	96.7	96.7
Bottles	1	3.3	100.0
Others	0	0	
Total	30	100	

Source: Field data, 2021

**Price of a product**

The result indicated that 21(70%) of products are packaged in a polythene bag weighing 50 grams of dried mushrooms and sold at kshs100. The findings also showed that 30% of consumers purchased mushrooms in a package of 1 kg ,costing kshs2000. The

strategy of package size was aimed at low income level segment. The finding was in agreement with [9] who reported that quantity available can only be sold in small quantities (Table 5).

**Table 5. Selling price**

Unit	Price/unit(Ksh)	Frequency	Percent(%)	Cumulative( %)
1kg(1000gms) dried	2000	9	30.0	96.7
50gm dried	100	21	70.0	100.0
Others	0	0	0	
Total		30	100	

Source: Field data, 2021

**Processing of mushrooms**

Results indicated that majority of mushroom growers undertake processing activity seriously in order to increase shelf-life of the product, 25(83.3%), while 5(16.7%) sold unprocessed mushroom products. This

implies that those who do not undertake processing activity, sale mushrooms in fresh form(Table 6).This result supports the report of [9] who reported that processing activity adds value to fresh mushrooms.

**Table 6. Processing**

Type	Frequency	Percent (%)	Cumulative (%)
Processing	25	83.3	83.3
No processing	5	16.7	100
Total	30	100	

Source: Field data, 2021

**CONCLUSION**

The study concluded that there has been little effect of marketing strategies on performance of oyster mushroom for smallholder farmers. Generally, the generic marketing strategies such as product strategy, price strategy, place strategy and promotion strategy are seldom applied in marketing of mushroom products. The mushroom products are not

branded, use of polythene bags and bottles as packaging materials rarely attract consumers. However, processed products have added value to mushroom products. Distribution channels adopted such as personal selling, retailers, groceries and own group have had minimal effect. Also promotion of mushroom products has not been emphasized.

**RECOMMENDATIONS**

The study recommended the following:

**i) Intensive training on marketing mix strategy**

The growers require skills on product strategy, price strategy, place strategy and promotion strategy. The training can be organized by County Government of Kakamega, Kenya

**ii)Development of incentive schemes**

The incentive schemes such as awards, bonuses will encourage mushroom

growers to increase production and also improve on creatively in order to develop new market strategies.

**iii)Construction of cold storage facility for fresh mushrooms**

Mushroom is highly perishable product ,therefore shelf-life can be increased if cold rooms are constructed for fresh or unprocessed mushrooms for

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preservation of quality and other inherent characteristics.

#### **iv) Formation of Mushroom Cooperatives for sale**

The functions of mushroom cooperatives will include:

- a) Creation of refrigerated transport facility
- b) Creation of processing facility
- c) Creation of distributor channel
- d) Selling on economies of scale

- e) Branding, designing and selection of package materials

#### **v) Formulation of mushroom pricing policy by the Government**

The Government to start looking at mushroom industry as a going concern which require policy framework to protect mushroom growers just like Coffee and Tea industries.

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