INVESTIGATING MARKETING COMMUNICATION CHANNELS IN
THE MARKETING OF AGRICULTURAL SEEDS IN KENYA –
THE CASE OF MAIZE SEED

BY

CHARLES K. GACHERU

A Project Report Submitted to the School of Business in Partial
Fulfillment of the Requirement for the Degree of Masters in Business
Administration

UNITED STATES INTERNATIONAL UNIVERSITY
NAIROBI

SPRING 2003
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: [Signature]  Date: 25/08/2003
Charles Kii Gacheru (ID 608868)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: [Signature]  Date: 25-08-2003
Mr. Bernard Kinyungu

Signed: [Signature]  Date: 28.8.2003
Dean, School of Business

Signed: [Signature]  Date: 2/09/2003
Deputy Vice Chancellor, Academic Affairs
ABSTRACT.

One of the main challenges facing marketers in the agricultural sector in Kenya is the dissemination of information about their goods and services to their existing and potential customers, the farmers.

The study sought to establish the marketing communication channels that exist in the agricultural seed sector and to identify those that can be used effectively. Specifically, the study focused on marketing communication challenges in the maize seed sector. The study also made recommendations for seed merchants to apply in their endeavor to communicate effectively with farmers.

The study conducted interviews with maize farmers in Kenya, drawn from the top 27 agricultural districts. Interviews with seed merchants actively engaged in maize seed marketing activities in Kenya were also conducted to collect data on marketing communication channels used and their frequency of use.

The study established that although farmers sought information from conventional channels of communication such as Radio, they also sought information from more unconventional channels such as friends and neighbors.

It was established that information flow from maize seed merchants to the small-scale farmers was largely through word of mouth, field days/demonstrations and the radio. Information flow to medium-scale farmers was largely through the radio and seed stockists operating within their localities and information flow to the large-scale farmers was mainly through individual farm visits by representatives from the various agricultural firms.
The study recommends some changes in the way maize seed merchants communicate with farmers. It also recommends further research into the effectiveness of marketing communication channels and their influence on farmer's buying decisions, adoption and use of new maize varieties.
ACKNOWLEDGEMENT.

Firstly I would like to thank my family for their patience, understanding and support throughout my MBA studies.

My gratitude also goes to the various District Agricultural Officers, Divisional Extensional Officers, Crop Officers and All Extension Officers in the various districts where I conducted my research - without you, this study would not have been completed.

I would like to thank my supervisor, Mr. Bernard Kinyungu for all his professional guidance and encouragement.

Finally I would like to thank all those who assisted me in one way or another to complete my research work.
DEDICATION.

This research work is dedicated to the millions of Kenyan farmers who relentlessly toil the harsh earth in a bid to feed themselves and the nation. May your efforts to provide food and eradicate poverty bear fruit.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declaration</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>v</td>
</tr>
<tr>
<td>Dedication</td>
<td>vi</td>
</tr>
<tr>
<td>Contents</td>
<td>vii</td>
</tr>
<tr>
<td>Appendixes</td>
<td>ix</td>
</tr>
<tr>
<td>List of Tables</td>
<td>x</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xi</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER 1: INTRODUCTION

1.1. Background of the Problem  1.
1.2. Statement of the Problem        3.
1.3. Purpose of the Study           4.
1.4. Specific Objectives             4.
1.5. Justification of the Study      5.
1.7. Chapter Summary                7.

## CHAPTER 2: LITERATURE REVIEW

2.1. Defining Communication           8.
2.1.1. Defining Marketing Communication 8.
2.1.2. Defining Marketing             10.
2.1.3. Distribution Channels in Agriculture 11.
2.1.4. Promotional Activities        12.
2.2. Training & Visit Approach - Extension as a means of communicating new technology to farmers 13.
2.2.1. Evaluating Promotional Activities 15.
2.3. Chapter Summary                  19.

## CHAPTER 3: METHODOLOGY

3.1. Introduction                     22.
3.2. Research Design. 22.
3.3. Population and Sample. 22.
3.4. Sampling Design/Methods. 22.
3.4.1. Sampling the Farming Populace. 22.
3.4.2. Sampling the Seed Merchants. 23.

CHAPTER 4: RESULTS AND FINDINGS.
4.1. Results from Farmers. 26.
4.1.2. Main Farming Activities. 29.
4.1.3. Type of Agricultural Seeds Used. 31.
4.1.4. Main Source of Agricultural Seed Used. 32.
4.1.5. Knowledge Source of New Agricultural Seed. 35.
4.2. Results from Seed Merchants. 39.
4.3. Chapter Summary. 45.

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.
5.1. Introduction. 46.
5.2. Discussion. 46.
5.3. Conclusions. 48.
5.3.1. Conclusions from the Farmer Survey. 48.
5.3.2. Conclusions from the Seed Merchant Survey. 48.
5.4. Recommendations. 49.

BIBLIOGRAPHY. 51.
APPENDIXES.

Appendix 1: Questionnaire covering letter. 54.
Appendix 2: Farmer questionnaire. 55.
Appendix 3: Seed Merchant questionnaire. 58.
Appendix 4: List of the 27 main agricultural districts of Kenya. 60.
Appendix 5: Budget. 62.
Appendix 7: Examples of adverts in agricultural magazines and journals. 65.
LIST OF TABLES.

Table 1: Average size of farms surveyed (224 farmers). 27.
Table 2: Percentage number of farms by size. 27.
Table 3: Main farming activities. 28.
Table 4: Main types of agricultural seeds used by farmers. 32.
Table 5: Main source of agricultural seed used. 32.
Table 6: Knowledge source of new agricultural seed. 35.
Table 7: Knowledge source of Pannar hybrid seeds. 36.
Table 8: Media used by seed merchants to communicate to farmers 40.
Table 9: Radio stations used by seed merchants 40.
Table 10: Print media used by seed merchants. 40.
Table 11: Financial Budget for the Project. 62.
LIST OF FIGURES.

Figure 1: Total Hybrid Maize Seed Sales in Kenya (1998-2002) 2.
Figure 2: Conceptual Map 21.
Figure 3: Average size of farms. 28.
Figure 4: Size of farms in High Potential Districts. 28.
Figure 5: Size of farms in Medium to Low Potential Districts. 29.
Figure 6: Main farming activities. 30.
Figure 7: Main types of agricultural seeds used. 33.
Figure 8: Source of agricultural seed. 34.
Figure 9: Knowledge source of new agricultural seeds. 37.
Figure 10: Knowledge source of Pannar Hybrid seeds. 38.
Figure 11: Media used by seed merchants to reach farmers. 42.
Figure 12: Choice of Radio station. 43.
Figure 13: Percentage of seed merchants using various Print Media 44.
1. AFSTA – Africa Seed Traders Association.
2. Baraza – local village gatherings or meetings, normally convened by the local administration.
4. F1 – First Generation OPV.
5. F2 – Second Generation OPV.
6. FAO – Food and Agriculture Organization.
7. GMO – Genetically Modified Organisms.
8. High Potential Areas – receive over 857.5mm of annual rainfall.
10. KSCo – Kenya Seed Company Ltd.
11. Low Potential Areas – receive below 612.5mm of annual rainfall.
12. Medium Potential Areas – receive between 735-857.5mm of annual rainfall.
14. OPV – Open Pollinated Varieties.
15. Pannar – Pannar Seed (K) Ltd.
16. STAK – Seed Traders Association of Kenya.
CHAPTER 1: INTRODUCTION.

1.1. Background of the Problem.
The role of agriculture in Kenya is two-fold; agriculture is directly linked to food security issues that constantly occupy our minds. Additionally, the agricultural sector contributes up to 30% of the GDP, being second only to tourism in that respect (Central Bureau of Statistics, 2001).

Marketing of farm inputs in the agricultural sector has many challenges majority of them occasioned by the fact that most of our farmers operate on small scale for subsistence and are spread throughout the country (Njogu, 1989). Other factors that challenge marketing communication in the agricultural sector include;

i. A high level of illiteracy among the small-scale farmers.

ii. Undefined market communication channels – the collapse of the extension services of the Ministry of Agriculture has made this situation worse.

iii. The farming community is made up of a large number of small-scale farmers scattered throughout the country - reaching these farmers is a time and resource consuming exercise.

iv. The general decline in the economy has seen a decrease in the funds allocated to marketing activities and this has necessitated clear and effective marketing communication techniques.

(Kilimo News, Nov. 2001).

The agricultural seed sector has witnessed a general decline in size over the last six years and Pannar Seed has particularly suffered a major decline in sales as shown in Figure 1.

Whereas the general state of the economy coupled with poor maize grain prices, grain imports from Eastern Uganda and Northern Tanzania are responsible for the decline in seed sales in the seed sector generally, it is strongly believed that a lack of clear marketing communication channels has led to the decline in seed sales at Pannar Seed and the Kenyan seed industry at large.
Further challenges to marketing communication in the agricultural sector stem from the fact that Kenya’s population has a rural bias with 80% of the population being rural based (Steadman and Associates, 2002). On the other hand, most media is limited to the urban areas with Nairobi and other urban areas having 50% of all the TV sets in Kenya (866,000 sets) compared to 873,000 sets in rural areas (Steadman and Associates, 2002). The rural households however hold 77% of the 5.3M radios in the country. It is interesting to note that 87% of all Kenyan households have access to a radio.

Traditional media such as newspapers, radio and TV have limitations because the distribution of newspapers is limited and purchasing power in rural areas is low. Language and literacy levels also form a challenge. TV as a communication media is growing fast, but the expense is beyond many rural dwellers’ means (Research International, Jan 1999). Lack of electricity also limits access to TV. Although radio is the main medium used to reach rural audiences (Research International, Jan 1999) it lacks the impact of audio-visual medium and does not offer opportunities for feedback. However, live “call-in” programs today do offer some feedback opportunities.
1.2. Statement of the Problem.

One of the greatest challenges in the marketing of agricultural seed is disseminating information about products to the market (Kilimo News, November 2001). Seed merchants need to establish what communication channels exist in this sector.

There are several traditional communication channels used in the agricultural seed sector to reach Kenyan maize farmers. These include:

i. Use of electronic media, e.g. Kameme and CORO FM radio stations.

ii. Farmers meetings and other administrative meetings that bring farmers together.

iii. ASK shows, demonstrations and strip trials - either organized directly by the seed merchants or in collaboration with the Ministry of Agriculture, or organized by farmers’ unions.

iv. Print media - several farmers’ journals have been used to advertise the various maize hybrids on offer in Kenya, posters and leaflets have been used to publicize new hybrids. (See Appendix 7 for an example of some of the adverts). (Kilimo News, Nov. 2001).

Previous research has established the traditional methods of marketing communication that exist in the marketing of farm inputs and new farming technology. However, it is the hypothesis of this researcher that indeed many of these communication channels, traditionally used, do not work. The failure of these communication channels can be seen via the poor lack of adoption of modern agricultural practices especially among the small-scale farmers. It should, however, be noted that lack of adoption can be due to several other factors such as demographics, credit facilities, prices of agricultural produce and so on (Salasya et al, 1998).

It was the aim of this research to establish the marketing communication channels used to reach the farming community, that is those channels that will best enable seed merchants to get their message to the farmers.
1.3. Purpose of the Study (General Objective).
The main objective of this study was to establish effective marketing communication channels in the marketing of agricultural seed. The study also sought to establish a few broad issues including:

i. Which marketing communication channels exist in the agricultural sector from the perspective of both the seller (seed merchant) and the receiver (farmer, seed wholesalers and distributors, as well as other players in agriculture)?

ii. Which marketing communication channels are used by the three classes of farmers (small, medium and large-scale) to access information about agricultural seed?

1.4. Specific Objectives.
The research work specifically addressed issues pertaining to the access of information by all classes of farmers. It also addressed issues pertaining to which specific channels are preferred and used by seed merchants to disperse information to the farming community and other stakeholders in the industry.

Specifically, the study tried to answer the following research questions;

1. Which communication channels do the successful seed companies, and other organizations engaged in the agricultural sector in Kenya use to disseminate information to the farming community?

2. Where do farmers get information on new maize seed technology?

3. What is the perceived rate of technological adoption witnessed when using the various marketing communication channels that exist in the seed sector?
1.5. Justification of the Study.
Players in the agricultural seed sector in Kenya spend a huge amount of money in marketing communication. For example in the year 2000, Pannar Seed (K) Ltd., spent over US$ 70,000 on marketing communication efforts in Kenya. This included money spent on:
1. Organizing field days, demos and strip trials.
2. Money spent on the purchase and distribution of tokens including caps, pens, t-shirts etc.
3. Money spent on the printing of posters, product guides, leaflets and pamphlets.
4. Media advertisement fees, this includes both the print and electronic media.
5. Other promotional fees.

Since the expense involved in communication efforts is large, Seed Merchants would like to establish the marketing communication channel alternatives available to them to reach farmers? The merchants will therefore be able to apply target marketing and avoid unnecessary expenses.

The research intended to reveal the marketing communication channels that farmers use to access information and by so doing guide organizations in the seed sector on how best to direct their communication efforts as far as the dissemination of information is concerned.

The results of this study will benefit the stakeholders in the seed industry. Farmers will have easy access to information in time. Distributors and stockists who are a key element in the dissemination of information to farmers will also have easy access to information and it is envisaged that they will play a crucial role as a marketing communication channel themselves.

Other benefits expected to accrue from this study include increased use of existing maize seed technology and increased adoption of the same.
1.6. Scope of the Study.

The study covered 14 of the 27 main agricultural districts in Kenya and the target population was the farming community engaged in either subsistence and/or commercial agriculture.

The study also covered the seed merchants actively engaged in the agricultural seed sector in Kenya. Interviews here were conducted with the aim of establishing the market communication channels they use and the various degrees of success they have had with such channels.

The research aimed to make generalizations of the Kenyan farming community spread across virtually all the districts in all the provinces of the entire nation. It was however anticipated that the findings of this research could not be duplicated across all the Kenyan districts. Communication efforts that may work in Taita Taveta District may not work in Nakuru or Nyeri District. Even within the same Districts, farmers in different Divisions and even Locations respond differently to different communication campaigns. For example farmers in the principally coffee and tea growing zones will be expected to respond better to messages directed through their respective farmers’ unions.

Other limitations in terms of geographical coverage that were anticipated included accessing the many agricultural regions due to lack of proper communication facilities and other infrastructure related problems.

Other anticipated challenges in the execution of the research included:

1) Farmer Participation - when dealing with small to medium-scale farmers, access to this group of farmers is relatively easy, although in some parts of the country strangers are treated with a great deal of suspicion. On the other hand, large-scale farmers are difficult to access; electric fences and security guards often stand between potential visitors and these farmers.

2) Access to necessary guiding secondary data that should be available through the Ministry of Agriculture is not always readily available.
1.7. Chapter Summary.

In summary, the purpose of the study was to establish which marketing communication channels are most frequently used by seed merchants to get information across to the different classes of farmers and to also establish the different communication channels that the different classes of farmers use to access information in agriculture. The study focused on agricultural seed with particular reference to maize seed. Maize is the country's staple food crop and of major importance to food security.

The study endeavored to draw valid conclusions across the Kenyan farming communities and as such surveying farmers from across districts countrywide was necessary.

The remaining part of the report focuses on similar research work carried out by other researchers in literature review. It also highlights the data collection and analysis methods as well as the results and findings. Finally the report lists some conclusions and recommendations.
CHAPTER 2: LITERATURE REVIEW.

2.1. Defining Communication.
Communication can be defined in many ways; however, communication is only seen to occur once the receiver interprets the message to mean exactly what the sender meant. Kotler (1985) defines communication as involving a sender and a receiver. The receiver uses the message and a given media as communication tools and encoding, decoding, response and feedback for the communication functions.

For communication to be effective, senders must understand the motivation of their audiences in order to structure their message so that the audience will interpret it correctly through the decoding process (Kotler, 1985). The sender must also ascertain the most effective communication media through which to reach the audience and also establish effective communication feedback.

2.1.1. Defining Marketing Communication.
Marketing communication is one of the elements of the marketing mix. The Marketing Mix includes Price, Product, Place and Promotion. Although all elements of the marketing mix communicate some values or perceptions to customers, it is the task of a planned and integrated set of communication activities to communicate effectively with each of the target customers.

Marketing Communication can be defined as "all forms of communication between an organization and its customers and potential customers" (CIM Study Text, 1999). Marketing Communication can also involve "all communication" by an organization with its environment and its various stakeholders not just the customers.

Yeshin (1998) defines Marketing Communication as “the process by which the marketer develops and presents an appropriate set of communications stimuli to a defined target audience with the intention of eliciting a desired set of responses”.

The tools and methods of marketing communication include, the deliberate and intentional methods calculated to bring about a favorable response in the customers behavior. Such tools include:
• Direct Marketing.
• Advertising.
• Public Relations.
• Personal Selling.
• Sales Promotion.

Advertising.
Advertising can be defined as "non-personal paid for communication targeted through mass media with the purpose of achieving set objectives. It's an impersonal tool and personalized feedback is not usually obtained, however, it reaches large audiences in a cost effective manner (CIM Study Text, 1999).

Personal Selling.
This is the presentation of products and associated persuasive communication to potential clients, employed by the supplying organization. It's the most direct and longest established means of promotion and it involves all cadres of an organization's staff.

Sales Promotion.
The Institute of Sales Promotion (UK) defines Sales Promotion as "a range of tactical marketing techniques, designed within a strategic marketing framework, to add value to a product or service in order to achieve a specific sales and marketing objective.

Such objectives include – price reductions, competitions, gifts with purchases and other gift tokens. Sales promotions are useful in achieving short-term objectives.

Public Relations.
The Institute of PR (UK) defines PR as "the planned and sustained effort to establish and maintain goodwill and mutual understanding between an organization and its publics. There are four widely recognized models of PR practice:

1. Press Agency/Publicity – more concerned with the spread of propaganda.
2. Public Information – used to disseminate useful information.
3. Two-way asymmetric – scientific persuasion.
4. Two-way symmetric – here PR serves as a mediator between the organization and its publics (CIM Study Text, 1999).

**Direct Marketing.**
The Institute of Direct Marketing (UK) defines Direct Marketing as “the planned recording, analysis and tracking of customer behavior to develop relational marketing strategies”. Direct Marketing helps create and develop direct relationships between the firm and clients.

**The Internet.**
Although not currently included in the promotion mix, the Internet is rapidly becoming an effective communication and marketing tool. Many “virtual firms” now use the Internet almost exclusively to keep in touch with their clients and in advertising their wares.

**2.1.2. Defining Marketing.**
Several definitions of marketing as an activity exist, below are some that are relevant to the situation in agriculture.

*Marketing is the process in a society by which the demand for economic goods and services is anticipated or enlarged, and satisfied through the conception, physical distribution and exchange of such goods and services (Kempner, 1972).*

*Agricultural marketing is the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumer (Kohls, 1968).*

Marketing has over the years evolved to become a major economic activity in most organizations. Indeed most firms offering goods and/or services to consumers usually have a fully-fledged marketing department. Marketing in the agricultural sector becomes an even more complex activity due to the nature and organization of “players” in the sector. Few if any functional groups of farmers exist thereby making it more difficult to reach these potential customers.
2.1.3. Distribution Channels in Agriculture.
According to Barker (1981) there exists 6 distribution channels in agriculture, they include;
1. Direct selling;
2. Sales through agricultural merchants;
3. Commission agents;
4. Farmer buying groups;
5. Direct mail, and;
6. Other methods.

In the Kenyan scenario, the Direct Mail method is not applicable, direct selling, or what is commonly referred to as individual farm visits is practiced when dealing with large-scale farmers, sales through commission agents and through agricultural merchants is more common and is usually the most preferred method of channeling farm inputs to small-scale and medium-scale farmers. The use of farmer buying groups was previously very popular in Kenya where young farmers groups, women groups and youth groups were very active and supported by the government. The giant cooperatives and farmers’ unions that once offered effective marketing channels have since collapsed and have become largely un-credit worthy making it difficult to use them effectively as a marketing channel.

Terpestra (1972) suggests that 4 tasks must be successfully completed if a firm is to market its products properly, they include;
1. The firm must study its potential customers, who they are and where they are to be found and what influences their purchase or non-purchase of products.
2. The firm has to develop products or services that satisfy customer needs and wants.
3. The firm must ensure that products are available when and where buyers can conveniently get to them.
4. The fourth and final task of the firm is to inform the market about its produce and this will probably include some method of persuading them to buy the same.

In the local agricultural sector, performing any of the above tasks is not an easy process; studying consumer behavior as it were would entail traveling extensively
into the vast Kenyan countryside trying to establish what influences buying behavior. However, over the years research has managed to somewhat establish where consumers are to be found, in fact the Ministry of Agriculture offers some district based data on farming activities in the country.

Product development on the other hand is more often based on “perceived” needs and wants of the farmers and products that are mostly responsive to the needs of the farming community dominate the industry. Availing these products to the farmers is mainly through the use of agricultural merchants and commission agents as described above.

2.1.4. Promotional Activities.
Promotion can be seen as a part of the overall marketing strategy includes the following activities:
1. Advertisement - this can be either in the electronic or print media, the use of billboards, posters and pamphlets.
2. Sales promotion - this can include sales discounts, special offers, road shows and so on.
3. Publicity campaigns - mainly geared towards increasing public awareness about a product.
4. Public relations campaigns.
5. Personal selling - this involves farm visits in the agricultural sector.

Promotion can therefore be defined as a marketing tool used in firms and its objective is to communicate.
2.2. Training & Visit Approach - Extension as a Means of Communicating New Technology to Farmers.
In 1980, the Development Planning and Research Associates (DPRA) conducted research work in Western Kenya (The Kenya National Crop Storage Study) to try and increase the use of more effective on-farm grain drying and storage practices by smallholders. (Bahemuka, 1985).

The study looked at the problems afflicting the adoption of technology similar to what this research work aims to do. The DPRA study analyzed the problems afflicting the Training and Visit Approach and Extension (T and V Approach) as practiced by the Ministry of Agriculture and listed the following problems;
• Lack of transport.
• Lack of promotion for deserving staff.
• Lack of motivation.
• Lack of refresher courses.

The study however highlighted the T and V approach strengths as:
• It facilitates daily farmer contact.
• It provides a systematic training approach for farmers.
• Extension agents follow a definite schedule.
• It has been seen to increase crop production.
• It provides strict supervision of implemented projects, and;
• It encourages farmers to adopt new technologies.

The study highlighted the weak points of the T and V approach as:
• The extension staff are overworked.
• It tends to concentrate on contact farmers at the expense of other farmers.
• It tends to favor certain crops.
• It can be monotonous.
• It is expensive.

The DPRA study further explored reasons for and against adoption of technology. Technological adoptions were mainly attributed to 3 factors;
• Peer pressure.
• Higher yields.
*Government pressure.

Technologies that had no cash implications and fast payoffs had 58 - 84% adoption rate, those with cash implications and fast payoffs had 30 - 71% adoption rate, those with no cash implications and longer term payoffs had 10 - 34% adoption rate and those with cash implications and longer term payoffs had 4 - 23% adoption rate.

These findings were further collaborated by Mbitih and Bahemuka (1985) who argued that economic variables like price are key factors in influencing technological adoptions. They also suggested that the distance from urban centers, farmers' training institutes and research stations (spatial adoption approach) plays a key role in adoption.

Bahemuka (1985) proposed that the following factors affect adoption;
* The education level of farmers.
* Ownership of land parcels elsewhere.
* Outside or external sources of income.
* Contact with veterinary, health and religious officers.
* Radio listening and frequency.
* Membership in cooperatives.
* Title deed to land (land ownership).

Mbitih and Bahemuka (1981) further suggest the following reasons for the lack of technological adoption;
1. The relative deprivation in terms of goods, services and amenities.
2. Poverty.
3. Risk taking.
4. Decision-making.
5. Motivation theory.
6. Participation theory.
7. Communication theory.
8. The social structure of agriculture.
Most of these factors above will be expected to impact on the study being proposed here and many of the reasons that will emerge for and against the methods of promotion will stem from these reasons.

The sociological analysis of constraints to the adoption of technology has traditionally focused on the characteristics of communities and farmers (Everett et al., 1969). Rural sociologists have thus studied age, sex, and education status of the farmers, farm size, farm income, communication barriers, communication leadership and social participation.

In Kenya this has led to generalization about farm technology adoption behavior which has influenced the design of agricultural extension techniques which tend to focus on progressive farmers, contact farmers, women groups, barazas, Young Farmers Clubs and 4-K clubs.

Magana (1998) carried out an evaluation of promotional strategies conducted by the Public Law Institute of Kenya (PLI). Despite the fact that the PLI had conducted a lot of promotional activities, no study had ever been conducted to evaluate the effectiveness of these efforts. Similarly in the seed industry, a study on the effectiveness of promotional activities and more so the cost-effectiveness of promotional activities, has never been conducted.

Magana (1998) endeavored to broadly establish the effectiveness of various promotional activities, but more specifically she aimed to establish:
1. The types of promotional activities undertaken.
2. What their impact was.
3. How to recommend further promotional strategies.

2.2.1. Evaluating Promotional Activities.
Magana (1998) further aimed to evaluate what kinds of promotional material to use, to establish whether the messages reach the audience target and whether the audiences respond positively. This study has a lot of parallels with the study proposed here in that the researcher would also like to establish the kind of
promotional tools to use and to more importantly establish whether the messages reaches the farmers and what their reaction is once they get the message.

Adams (1982) suggested the following reasons as being behind the agricultural extension problem in developing countries;

- The population problem - here he suggested that the rapid increase in population common in most developing countries has stretched the extension services to a point where they are no longer effective.
- Inappropriate content - in many instances inappropriate technology is advanced to farmers, further the extension officers themselves have little understanding of modern farm management techniques.
- Lack of practical skill - poor training and selection of extension workers. Extensionists may be trained in audio-visual presentations and not trained in the subject matter.
- Lack of supporting services - in most developing countries 50 - 80% of the households are dependent on agricultural employment and many farmers are illiterate. Farmers rarely get the true worth of their produce, transport costs are high and farmer unions are frequently suppressed.

Awah and Numfor (2000) conducted a study in Cameroon to establish the reasons for lack of uptake of technology in the post-harvest treatment of cassava. They found that despite the inappropriateness of the technologies used by farmers new technologies were not widely adopted and the reasons suggested by the study for the lack of adoption included;

1. Lack of credit facilities;
2. Inappropriateness of new technology, and;
3. Poor extension services and techniques.
4. Lack of availability of technology in remote villages.

In going about their study, Awah and Numfor (2000) used diagnosis to discover the constraints and opportunities for technology adoption, they conducted field visits and they also carried out training sessions to impart on the local communities the theoretical and practical features of new technologies. Their study results included
the farm activities conducted by the various farmer groups, their average farm holdings and the post harvest techniques most commonly used by the farmers. They also noted in their study that different farmer groups used different techniques and they tried through their diagnosis and field visits they tried to establish the reasons for these preferences.

Delozier (1976) in evaluating promotional elements said;

“Good marketing communication programs are built upon an understanding of the intended market and are altered according to post measurement reactions of the target market”.

According to Delozier (1976) messages must be selected on the basis of desirability, exclusiveness and believability, these three factors constitute the communications potency. Kotler (1985) emphasizes that it is not what is said but how it is said.

Media decisions, that is the criteria for choosing the promotional media to use should include;
1. The capacity of the media to deliver reach.
2. Frequency.
3. Impact.

Most of the common agricultural journals and magazines in Kenya offer only a small reach making them an ineffective means of promotion. The illiteracy levels in Kenya further disadvantage the print media as an effective media of communication. It has often been said that Kenyans do not have a culture of reading.

Factors to consider in choosing the media to use include;
1. The target audience media habits.
   It will be the aim of this study to describe the media habits of the Kenyan farmers in the various districts.
2. The product in question.
In deciding on media variables, one should also consider:

1. The time of year in which to carry out promotional activities.

Most promotional activities in the agricultural sector are conducted just prior to the planting seasons. The reason for this is that impact of the promotion can immediately be realized.

2. When using radio adverts, the time of day should also be considered. It has been the finding of some research findings that farmers listen to their radios at the end of a days work, consequently radio adverts should only be aired in the mid-afternoon and early evening.

Advertising can also be conducted continuously, intermittently or in bursts (Delozier, 1976). In evaluating advertisements, Novelli (1978), suggested that the most important components are copy-testing, media testing and expenditure level testing. Copy testing can either be in the form of pre-testing or post-testing.

Pre-testing methods include direct ratings, portfolio tests and laboratory tests. Post testing methods include recall tests and starch recognition tests. It is the intention of this study to include some form of advertisement evaluation to judge the impact and reach of adverts placed in various forms.

Promotion as a marketing tool can consist of 4 strategies (Magana, 1998), and an organizations' total communication program is referred to as the promotion mix. The 4 strategies include;

1. Advertising:

Kotler (1985) defined advertising as any paid form of non-personal presentation and promotion of ideas, goods and services by an identified sponsor. It involves the media i.e. magazines, newspapers, radio and TV, outdoor advertisement, novelties (calendars, pens, caps etc.), catalogues, references, programs and so on.

The purpose of advertisement is to build long term image of the firm, to promote a particular brand or to disseminate information about a particular sale, service or event.
2. **Sales Promotion:**
This comprises of a wide variety of tactical promotional tools and these can be classified as;
- Tools for consumer promotion e.g., samples, coupons, money refund offers, price-off offers and contests.
- Tools for dealer promotion e.g., free goods, merchandise allowances, dealer sales and contests.
- Tools for sales force promotion.

Sales promotions can take the form of insistent presence or product promotion and the sales promotions have 3 objectives, (i). communication, (ii). incentives, and (iii). invitation to buy.

3. **Public Relations:**
This involves 3 main elements according to Edward Bernays, they include;
- Informing people.
- Persuading people and,
- Integrating people with people.

The Public Relation News (1974) defines PR as "the management function which evaluates public attitudes, identifies the policies and procedures of an individual or an organization with the public interest, and executes a program of action to earn public understanding and acceptance".

4. **Personal Selling:**
This simply entails one to one selling or one to many selling in conversation form.

2.3. **Chapter Summary.**
This chapter goes to show that the issue of technology adoption and the reasons for and against this is an issue that has often pre-occupied researchers. Further, although a lot of literature is available as to which marketing and promotional activity is fit for various scenarios, it is obvious in the Kenyan agricultural scenario that farmers do not always respond to promotion activities that we organize.
Further, most researchers have embarked on more or less similar methods to collect data, the most popular method being interviewing farmers as seen in Awah and Numfor (2000), Bahemuka (1985) and in Mbithi and Bahemuka (1981).

In the citations here, it is also clear that the issue of effectiveness of marketing communications efforts is a difficult one to assess and only inferences on the same can be made from factors such as the rate of technology uptake or adoption rates.

There are few general studies on the effectiveness of various communication techniques in the agricultural sector in general. However comprehensive studies on specific sectors such as the marketing communication challenges in the marketing of seed maize are entirely lacking.

The conceptual map below outlines the main categories of marketing communication channels (Figure 2).
MARKETING COMMUNICATION CHANNELS.

ADVERTISING.
1. TV.
2. RADIO.
3. Newspapers.
5. Farmers' magazines.

PERSONAL SELLING.
1. Farm visits.
2. Door to door selling.
3. Field days.

DIRECT MARKETING
1. Direct sales.

SALES PROMOTION
1. Cash discounts.
2. Gift vouchers.

PUBLIC RELATIONS
1. Press agency.
2. Public information.
3. Two-way asymmetric.
4. Two-way symmetric.
CHAPTER 3: METHODOLOGY.

3.1. Introduction.
This chapter describes the population researched, the sample and sampling methods, data collection methods and data analysis methods as well as the research procedures followed. It also describes the analytical tools used and the data collection instruments employed.

3.2. Research Design.
The research design followed was DESCRIPTIVE RESEARCH DESIGN. The research sought to research on and describe two phenomena, that is:
1. Which market communication channels do the various seed merchants use in trying to get messages to the farming community and other players in the sector?
2. Which market communication channels do most farmers use to acquire or access information regarding agricultural seeds (with emphasis on Maize seed)?

3.3. Population and Sample.
The research concentrated on two populations, one comprising all registered seed merchants in Kenya and the other comprising the entire Kenyan maize farming community.

Geographical Scope - the study covered farmers in the top 27 agricultural districts of the country as classified by the Ministry of Agriculture.

Time Scope - data collected was mainly primary data, however farmers were asked to focus back and share with the researcher on the type of communication activities that have influenced them from the year 2001 to 2002.

3.4. Sampling Design/Methods.
3.4.1. Sampling the Farming Populace.
A sample of farmers from 14 of the 27 agricultural districts were interviewed, with the basic aim of establishing:
(a). What type of seeds they use?
(b). How they came to know of that seed, i.e. what marketing communication channels - electronic, print or otherwise - was used to get information on the seed to them?
(c). What kind of marketing communication channel they mainly consult when seeking information directly related to seeds?
(d). What influences their purchase decision?
(e). Who decides on choice of seed?

The research aimed to collect the views of farmers from the top 27 agricultural districts in Kenya (see Appendix 4). Two hundred and twenty (224) farmers were picked using MULTI-STAGE SAMPLING.

• Firstly, the 27 districts were sampled at random.
• Then divisions within the district were sampled at random.
• The locations within the divisions were then sampled at random.
• Finally, farms within the locations were sampled at random.

Multi-stage sampling, helped to sample a large cross section of farmers across the country. It also gave some order to data collection and eliminated bias of collecting information from only those farmers who were easily accessible.

Choice of the 27 districts to be sampled was done on convenient sampling. Sampling from that point on was however based on probability with each element (that is divisions and locations) having the same chance of being sampled. Further, farmers within the locations were also picked at random.

3.4.2. Sampling the Seed Merchants.
The seed merchants were sampled entirely at random from the list of 43 registered seed merchants in Kenya. The research interviewed 24 seed merchants.
3.5. Data Collection Methods.
The principal tool of data collection used by this study was the questionnaire (see Appendix 2 and 3). Two separate questionnaires were used to collect data from the seed merchants and from the farmers. Respondents (farmers) were interviewed individually and collectively to collect data from them. One to one interviews with farmers were used as well as barazas and field days where farmers in groups were asked to share their information on communication channels in agriculture.

The study concentrated mainly on primary data collected from the farmers, stockists, staff from the Ministry of Agriculture’s research and extension liaison, farmer groups and farmer cooperatives and other players in the agricultural sector.

The research instruments were tested on real subjects, that is farmers and seed merchants to test their appropriateness and adjust them accordingly. It was envisaged that seed merchants would not need to be guided through the questionnaire whereas farmers, especially those in the medium to small-scale holdings, would have to be interviewed and their answers filled in the questionnaires by research assistants.

3.7. Data Analysis Methods.
Data was analyzed to establish which communication channels exist in the marketing of agricultural seeds. Data was presented in tables and bar charts. Correlations between parameters were analyzed and described with the help of descriptive and inferential statistics where necessary.

3.8. Chapter Summary.
Data collection was designed to facilitate ease of collection and also to ensure that a clear focus was maintained throughout this phase. The use of questionnaires was preferred because they allowed respondents to fill them out at their own time. The questionnaires were structured and hence they were easily understood by both the respondents and research assistants.
Results have been presented to answer the research questions and objectives. The study aims to show at a glance the various marketing communication channels that exist and their perceived impact.

Information regarding the various farmer perceptions of the various marketing communication channels will be invaluable information to Seed Merchants operating in the agricultural sector and it is the hope of this researcher that this information will go a long way in making communication activities in this sector of the economy more cost-effective.
CHAPTER 4: RESULTS AND FINDINGS.

Data from seed merchants and farmers was collected in slightly different ways. Although structured questionnaires were used in both cases, farmers were interviewed directly to guide them through the questionnaire where necessary and also to overcome illiteracy and language barriers. Seed merchants were given the questionnaires and requested to fill them.

Data collection among the farmers was conducted in two phases. A preparatory phase of the study involved visits to collect information about the districts, divisions, locations, sub-locations and villages from the Ministry of Agriculture and other administrative organs (such as the Provincial Administration). During this phase, sampling was also done – simple random selection. The second phase involved data collection from the farmers as per a list compiled with the help of local administrative and agricultural staff.

4.1. Results from Farmers.

Data collection was conducted country-wide among the main agricultural districts. These districts were described along their agro-ecological potential zones (as provided for by the MoA) into High Potential Districts (those that receive over 857.5mm of rain per annum), Medium Potential Districts (receiving 735-857.5mm of rain per annum) and Low Potential Districts (receiving less than 612.5mm). This definition of districts according to their agroecological zones is important because farmers in different zones behave differently in terms of farm size, farm activities and types of agricultural technology that they apply.

4.1.1. Average Size of Farms.

From the data collected, 17% of the 224 farmers interviewed were found to have less than 0.5 acres of arable land whilst 40% had between 0.5 – 1 acres of arable land. In other words, 51% of the farmers surveyed had 1 acre or less of arable land (Table 1).

However, when data from the High Potential Districts was analyzed by itself, only 12% of the 121 farmers had less than 0.5 acres of land whereas 28% had 0.5-1.0 acres of arable land and 32% of the farmers had 1-5 acres of land. This compared
sharply with data from the Medium to Low Potential Districts where 23% of the 103 farmers had less than 0.5 acres and 54% of these farmers had 0.5-1 acres.

Table 1: Average Size of Farms Surveyed (224 Farmers).

<table>
<thead>
<tr>
<th>Size</th>
<th>No. of farmers</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.5</td>
<td>39</td>
<td>17</td>
</tr>
<tr>
<td>0.5-1</td>
<td>90</td>
<td>40</td>
</tr>
<tr>
<td>1-5</td>
<td>53</td>
<td>24</td>
</tr>
<tr>
<td>5-10</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>10-20</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>&gt;20</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>224</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Percentage Number of Farms By Size.

<table>
<thead>
<tr>
<th>Size</th>
<th>% of total</th>
<th>% in High Pot.</th>
<th>% in Med. To Low Pot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.5</td>
<td>17</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>0.5-1</td>
<td>40</td>
<td>28</td>
<td>54</td>
</tr>
<tr>
<td>1-5</td>
<td>24</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>5-10</td>
<td>7</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>10-20</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>&gt;20</td>
<td>6</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

Only 7% of the total number of farmers had 5-10 acres of arable land and only a further 11% had over 10 acres of arable land. This position was more pronounced in the Medium to Low Potential Districts where only 9% of the total 103 farmers had over 5 acres of land.

Table 3 shows that 60% of farms in the high potential districts are between 0.5 – 5 acres in size whereas 54% of the farms in the Medium to Low potential districts are between 0.5 – 1 acres in size.
Table 3: Main Farming Activities (total, high pot. and med-low potential districts).

<table>
<thead>
<tr>
<th>Activity</th>
<th>No. Total</th>
<th>% Total</th>
<th>% High Pot.</th>
<th>% Med-Low Pot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence</td>
<td>56</td>
<td>25</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>Sub and Semi-Commercial</td>
<td>91</td>
<td>41</td>
<td>26</td>
<td>58</td>
</tr>
<tr>
<td>Semi-Commercial</td>
<td>28</td>
<td>13</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Commercial</td>
<td>49</td>
<td>22</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>TOTALS</td>
<td>224</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 3: Average Size of Farms.

Figure 4: Size of Farms in High Potential Districts.
4.1.2. Main Farming Activities.

The study also collected data on the categories of farming activities among the surveyed farmers. Farming activities were broadly divided into the four main categories of Subsistence farming, Subsistence and Semi-Commercial farming, Semi Commercial and Commercial farming. Table 4 shows a summary of the main farming activities.

Table 3 shows that 66% of all surveyed farmers practice either subsistence and/or semi-commercial farming activities. These figures however change when the districts are divided based on their agricultural potential. In the high potential areas 51% of the farmers practice semi-commercial or commercial farming whereas in the Medium to Low Potential areas 85% of the farmers practice subsistence and/or semi-commercial farming.
Figure 6: Main Farming Activities.

Main Farming Activities

% number of farmers

% Total

% High Pot.

% Med-Low Pot.

Subsistence

Semi-Commercial

Commercial
Table 3 and Table 2 actually show that a correlation exists between farm size and farm activities. In the High Potential Districts where farm sizes are larger (43% of all farmers surveyed had between 1-10 acres of land) 51% of all farmers were engaged in Semi-commercial or Commercial farming. In the Medium to Low Potential Districts (17% of all farmers surveyed had between 1-10 acres of land) only 15% engaged in Semi-Commercial and Commercial farming activities. It should also be noted here that the main Commercial farming activities in the Medium to Low Potential Districts were the growing of field crops such as coffee and tea, dairy activities and some horticultural activities purely for commercial purposes. However, it should be noted that although many of these farmers are engaged in some sort of commercial activity, they mainly farm for subsistence and any commercial ventures are mainly to meet subsistence needs. During data collection therefore, due attention was paid when interviewing farmers to clearly differentiate those involved in for profit agriculture (commercial agriculture) and those engaged in some form of commercial activity but that could not justify their classification as semi-commercial or commercial farmers.

4.1.3. Type of Agricultural Seeds Used.

Various types of agricultural seeds are available to farmers, ranging from their own farmer saved seeds (include local land races and second and subsequent generations of OPVs), first generation (F1) OPVs and hybrid seeds.

Table 4 shows that 54% of all seed used by farmers is NOT improved seed. Improved seed includes both hybrid seeds and first generation (F1) Open Pollinated Seeds. For the purposes of this study, only F1 OPV (First Generation Open Pollinated Varieties) were recorded under Open Pollinated Seed. F2 and consequent generations were recorded under Farmer Saved Seed.

Only 27% of the farmers surveyed used locally available Hybrid seeds. Some Hybrid seeds, especially in districts bordering Uganda, were recorded and the use of these was recorded under Other Seeds since this was illegally imported hybrid seed.
Table 4: Main Types of Agricultural Seeds Used by Farmers.

<table>
<thead>
<tr>
<th>Type of Seed</th>
<th>No. Total</th>
<th>% Total</th>
<th>% High Pot.</th>
<th>% Med-Low Pot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer Saved Seed</td>
<td>116</td>
<td>52</td>
<td>46</td>
<td>58</td>
</tr>
<tr>
<td>OPV</td>
<td>43</td>
<td>19</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>Hybrid Seed</td>
<td>61</td>
<td>27</td>
<td>37</td>
<td>16</td>
</tr>
<tr>
<td>Other Seeds</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Farmer saved seed may be Second Generation, or consequent generations of OPV, and/or local land races, which have been passed down over generations. The survey showed that 52% or just over half of all the farmers surveyed use Farmer Saved Seed.

In the high potential districts 37% of the farmers use hybrid seed compared to 16% in the medium to low potential districts. On the other hand 58% of farmers in the medium to low potential districts use farmer saved seed compared to 46% in the high potential districts.

4.1.4. Main Source of Agricultural Seed Used.

The study also endeavored to establish the source of the seeds used by farmers and Table 5 shows the data recorded in this respect.

Table 5: Main Source of Agricultural Seed Used.

<table>
<thead>
<tr>
<th>Source</th>
<th>No. Total</th>
<th>% Total</th>
<th>% High Pot.</th>
<th>% Med-Low Pot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Stores</td>
<td>84</td>
<td>38</td>
<td>28</td>
<td>49</td>
</tr>
<tr>
<td>Neighbors/Friends</td>
<td>19</td>
<td>8</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Market Place</td>
<td>31</td>
<td>14</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Seed Stockists</td>
<td>79</td>
<td>35</td>
<td>50</td>
<td>17</td>
</tr>
<tr>
<td>Other (incl. Free samples)</td>
<td>11</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Farmers source their seed from various locations ranging from their own seed stores, communal exchanges in market places, seed stockists and other sources.

A total of 46% of the farmers surveyed sourced their seed from either their own stores or from neighbors and friends.
Figure 7: Main types of Agricultural Seed Used.

Main Types of Agric Seeds Used

% number of farmers

Farmer Saved Seed
Open Pollinated Seed
Hybrid Seed
Other Seeds

% Total
% High Pot.
% Med-Low Pot.
Figure 8: Source of Agricultural Seed.

Source of Agric. Seed

% number of farmers

- Own Stores
- Neighbours/Friends
- Market Place
- Seed Stockists
- Other (incl. Free samples)

% Total  % High Pot.  % Med-Low Pot.
In total 65% of all farmers surveyed sourced their seed through informal channels whereas only 35% of the farmers used the recognized, formal and duly registered channels of agricultural seed distribution. In the High Potential Districts where the sale of seed has been an old practice, 50% of all farmers there use the formally recognized channels to source their seed, that is seed stockists and distributors. In the Medium to Low Potential Districts, only 17% of the farmers there use the seed stockists to fulfill their seed requirements. A total of 49% of all farmers in the Medium to Low Potential Districts source seeds from their own stores and another 29% use other informal channels to source for agricultural seed.

### 4.1.5. Knowledge Source of New Agricultural Seed.

Table 6: Knowledge Source of New Agricultural Seed.

<table>
<thead>
<tr>
<th>Source</th>
<th>No. of Farmers</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends/Neighbors</td>
<td>193</td>
<td>86</td>
</tr>
<tr>
<td>Market Place</td>
<td>119</td>
<td>53</td>
</tr>
<tr>
<td>Radio</td>
<td>145</td>
<td>65</td>
</tr>
<tr>
<td>Print Media</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Local Print (incl. Church news)</td>
<td>121</td>
<td>54</td>
</tr>
<tr>
<td>TV</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Field days/Demos</td>
<td>166</td>
<td>74</td>
</tr>
<tr>
<td>Seed Stockists</td>
<td>43</td>
<td>19</td>
</tr>
<tr>
<td>MoA Extension Staff</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Co-op Society/Farmer Groups</td>
<td>42</td>
<td>19</td>
</tr>
<tr>
<td>Other Sources</td>
<td>22</td>
<td>10</td>
</tr>
</tbody>
</table>

The main thrust of this study was to establish which communication channels are used by both the farmers and the seed merchants to receive and send information respectively. Table 6 shows the main sources of communication channels available to farmers and the pattern in which they access these sources of information. From this table it is clear that the majority of farmers use "word of mouth" to get information and keep abreast with new seed technology. 86% of all the farmers surveyed said they turn to their friends and neighbors to source new information on seeds whereas 53% said that they get information informally at market places. It is however worth noting that 65% and 54% of all farmers surveyed turn to the radio and local print media respectively to access information on new agricultural seeds. It is also interesting to note that the MoA, which should be the farmer's first reference point, scored poorly with only 14% of the total farmers saying they went to the MoA
to get information on new maize seeds. Cooperative societies and farmer groups which are in excellent positions to act as reference points for farmers also scored poorly with only 19% of all farmers saying they went there for information on new seeds.

In the farmer questionnaire, only 38 farmers, or 17% of the total number of surveyed farmers said they had had some knowledge or information on Pannar Hybrid Seeds. Table 7 shows the knowledge source that these farmers turn to, to access information on these varieties of seeds.

Table 7: Knowledge Source of Pannar Hybrid Seeds (38 Farmers).

<table>
<thead>
<tr>
<th>Source</th>
<th>No. of Farmers</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends/Neighbors</td>
<td>23</td>
<td>61</td>
</tr>
<tr>
<td>Market Place (Informal Barazas)</td>
<td>16</td>
<td>42</td>
</tr>
<tr>
<td>Radio</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Print Media</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>TV</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Field days/Demos</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Seed Stockists</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>MoA Extension Staff</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Co-op Society/Farmer Groups</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Other Sources</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

This part of the exercise was conducted to investigate whether a specific correlation exists between marketing communication efforts initiated by the Seed Merchant and the marketing communication channels most frequently used by the farmers. By so doing, the conclusions can be drawn as to why certain communication channels work and why others do not work. From Table 7 it is evident that majority of the farmers, 61% of the total, get information on Pannar Hybrid Seeds via “word of mouth”. 42% of the total also get information for the market place and informal barazas. Its comforting to note here that 39% of all the farmers and 21% of all farmers turn to the Radio and Stockists respectively to get specific information on Pannar Hybrid Seeds. As in the case with all hybrid seeds, the MoA scored poorly as a source of information managing only 8% of the total number of farmers who turn to the MoA to get information on Pannar Hybrids.
Figure 9: Knowledge Source of New Agricultural Seeds.

Knowledge Source of New Agricultural Seeds (224 farmers).

% of total farmers

- Friends/Nbrs
- Mkt
- Radio
- Print Media
- Local Print
- TV
- Field days
- Stockists
- MoA
- Co-op
- Other

100
90
80
70
60
50
40
30
20
10
0
Knowledge Source of Pannar Hybrid Seeds

% no. of farmers

- Friends/Neighbours
- Market Place
- Radio
- Print Media
- Field days/Demos
- Seed Stockists
- MoA Extension Staff
- Co-op Society
- Other Sources
4.2. Results from Seed Merchants.
The study also surveyed Registered Seed Merchants using simple random selection. There are 43 registered seed merchants in Kenya (KEPHIS annual report, 2002) and although an attempt was made to get information from all of them, only 24 seed merchants responded. The main aim here was to capture information on the main marketing communication channels used by the seed merchants in their attempt to reach their customers and to also collect information on the problems encountered in communicating to farmers as well as the solutions or attempts to overcome marketing communication barriers.

In response to the media used to communicate to farmers, it emerged that the majority of seed merchants used the Field days/demonstrations (including ASK Shows), Radio, Pamphlets/Leaflets as well as Posters very frequently as marketing communication channels (see Table 8).

Field days and demonstrations were the most popular marketing communication channels with 88% of all surveyed seed merchants using this communication tool frequently. The Radio was also very popular with 79% of the seed merchants using it as a communication channel to reach farmers. Citizen Radio which until recently had been off air was found to be very popular with 95% of the seed merchants using it (see Table 9). 84% and 89% of the seed merchants used Coro FM and Kameme FM, the Kikuyu channels serving mainly the Mt. Kenya Region, Nairobi and its environs respectively. KBC National Service, the station with arguably the largest coverage in the country had only 21% of the seed merchants using it as a communication channel. The KBC Vernacular Services were more popular with 42% of the seed merchants using one or more of these vernacular stations to reach farmers. For the purposes of this study, Coro FM and Metro FM which are KBC affiliate stations were considered to be independent stations.

The Print Media revealed some interesting perspectives. For the purposes of this study, Print Media referred to the conventional Print, that is the national newspapers and agricultural and other magazines whereas Local Print Media referred to localized newspapers or bulletins issued by local churches, NGOs, Cooperative societies and
Farmer Groups. These Local Print Media restrict themselves mainly to district news or even news in specific church dioceses.

Table 8: Media use by Seed Merchants to Communicate to Farmers.

<table>
<thead>
<tr>
<th>MEDIA</th>
<th>No. of Seed Merchants</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>19</td>
<td>79</td>
</tr>
<tr>
<td>TV</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Print Media</td>
<td>9</td>
<td>38</td>
</tr>
<tr>
<td>Field days/demos</td>
<td>21</td>
<td>88</td>
</tr>
<tr>
<td>Barazas</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Company Newsletter</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Posters</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>Pamphlets/Leaflets</td>
<td>17</td>
<td>71</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

Of the surveyed seed merchants, 38% used the Print Media (see Table 10) and of these only 22% used the Local Print Media.

Table 9: Radio Stations Used by Seed Merchants to Communicate to Farmers.

<table>
<thead>
<tr>
<th>RADIO STATION</th>
<th>No. of Merchants</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kameme FM</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>Coro FM</td>
<td>17</td>
<td>89</td>
</tr>
<tr>
<td>Nation FM</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>KBC National</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>KBC Vernacular</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Sayare</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Metro FM</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Citizen</td>
<td>18</td>
<td>95</td>
</tr>
</tbody>
</table>

Table 10: Print Media used by Seed Merchants to Communicate to Farmers.

<table>
<thead>
<tr>
<th>PRINT MEDIA</th>
<th>No. of Merchants</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Nation</td>
<td>6</td>
<td>67</td>
</tr>
<tr>
<td>East African</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>E. A. Standard</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Taifa Leo</td>
<td>4</td>
<td>44</td>
</tr>
<tr>
<td>Local Print Media</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Agric Magazines &amp; Others</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>People Newspaper</td>
<td>1</td>
<td>11</td>
</tr>
</tbody>
</table>

Point of Sales material, posters, pamphlets and also company newsletters are also used by seed merchants to reach their customers, the farmers and also to reach the
MoA staff especially extension staff, NGOs involved in agriculture and the seed stockists and distributors. 50% of all seed merchants were found to use Posters and 71% used Pamphlets and leaflets as marketing communication tools. Informal Barazas, either organized by farmers or by the local administrative organs were used by only 17% of all seed merchants as communication tools. The TV stations were the least used marketing communication channels with only 13% of the surveyed seed merchants using this tool. It should also be noted here that use of the TV was not in the form of adverts, but in the form of educational documentaries. Agricultural Magazines were found to have low distribution and as such were not useful a communication tools (see Appendix 7 for examples of such adverts).

Seed merchants further classified in order of preference and perceived effectiveness their choice of marketing communication channels and Radio came out as the most preferred mode of marketing communication followed by field days and demonstrations (including ASK shows nationwide). The use of posters, pamphlets and leaflets was also highly preferred. In terms of perceived effectiveness, Field days were thought to have the best capacity to deliver information to farmers and other stakeholders. The Radio was also thought to be a highly effective tool.

Most seed merchants cited cost as one of the most prohibitive barriers to effective communication. KBC National and Vernacular stations were particularly singled out as being very expensive stations to use. The TV was perceived to be ineffective because majority of Kenyans do not own a TV set and electricity is scarce among the rural farming communities. However, some seed merchants have used Video Shows to communicate to farmers. Regional Reach an affiliate of Kameme FM has established Televideo sets in various centers countrywide where films are screened to attract people and in between the film shows, adverts are run. However, not many seed merchants had used this service. Factual Films, a Kenya Film Corporation outfit also screens outdoor films and also airs adverts, however seed merchants had not used this service.

The main problem highlighted by most seed merchants was the challenge to reach the millions of small scale farmers scattered throughout the agriculturally active districts of the country.
Figure 11: Media Used by Seed Merchants to reach Farmers.

Media used by seed merchants to reach farmers

<table>
<thead>
<tr>
<th>% of total</th>
<th>Radio</th>
<th>TV</th>
<th>Print Media</th>
<th>Field days/demos</th>
<th>Barazas</th>
<th>Company Newsletter</th>
<th>Posters</th>
<th>Pamphlets/Leaflets</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>80</td>
<td>70</td>
<td>30</td>
<td>40</td>
<td>90</td>
<td>50</td>
<td>20</td>
<td>70</td>
<td>10</td>
</tr>
</tbody>
</table>

42
Figure 12: Choice of Radio Station.
4.3. Chapter Summary.

Most of the results and findings of this study were expected and in line with stated hypothesis, however, some findings were equally surprising. It emerged clearly that although seed merchants and farmers share the passion for the radio, field days and demonstrations, their views on issues such as written material, informal barazas and other unconventional marketing strategies such as “word of mouth” were divergent.

The results also clearly showed that correlations exist between size of land and type of agricultural activity. Interestingly also the agricultural potentiality of the land also had a bearing on the behavior and practice of the farmers.
CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.

5.1. Introduction.
This study was designed to investigate the marketing communication channels used by seed merchants in their attempt to communicate new maize seed technology to the farming community. It also set out to investigate the communication channels used by the farmers to access information on new maize seed technology.

This chapter now seeks to discuss the results from the survey with the aim of drawing conclusions to address the marketing communication channel challenges facing the seed merchants.

5.2. Discussion.
By surveying both the seed merchants and the farmers, the study sought to define the marketing communication channels used by these two groups to disseminate and collect information respectively. The study sought to identify correlations between what each group considered an ideal media for communication.

From the survey of the seed merchants it emerged clearly that the Field days/Demonstrations, Radio and use of Pamphlet/Leaflets were the most popular tools for marketing communication. The Radio is particularly popular due to its “shotgun” approach at information dissemination – it emerged that the Radio was also particularly favored since it requires little effort and participation from the seed merchants. Field days, demonstrations and ASK shows on the other hand were found to be very involving, with a lot of planning required to execute a reasonable field day. However, due to the practical nature of the field days and demonstrations, they also emerged as being very popular. Field days are more of a “rifle” approach to information dissemination and one to one discussions can be easily achieved at these functions. Further, field days unlike the Radio, TV or Print Media, offer the opportunity for feedback and can thus be useful tools for gathering market intelligence and farmer’s views.

From the survey of 224 farmers, it emerged that the most popular source of information, on maize seed, was from friends and neighbors (“word of mouth”).
Field days and demonstrations and the Radio were also popular sources of information on new seed maize varieties. Interestingly though, the Local Print Media – including Church News - also emerged as a strong source of information (54% of all farmers use Local Print to get information). The market place and informal barazas also emerged as important avenues of information dissemination.

From these findings it is clear that the Radio is a useful marketing communication channel and that Field days and demonstrations although challenging to organize are also useful tools. However, whereas the seed merchants have a huge tendency towards the use of literature in the form of pamphlets/leaflets, posters and company newsletters, the farmers did not see these as useful sources of information. Farmers did however note that striking posters could create a “feel-good” effect leading to purchase of the advertised product.

The study also showed a correlation between arable land size and agricultural activities conducted. The larger the size of land the more likely it will be engaged in some sort of semi-commercial or commercial agriculture. Land size was also correlated to other aspects such as crops grown, crop rotation, intercropping, use of fertilizers and the adoption of new agricultural technology. Salasya et al (1998) also found similar findings in Kakamega and Vihiga Districts when carrying out an assessment of fertilizer adoption and the role of credit availability in smallholder maize production. Salasya et al (1998) concluded that 50.8% of all smallholders (average land size = 0.41 acres) intercropped whereas only 27.9% of larger scale farmers intercropped. Salasya et al (1998) also found that 48.4% of smallholders used farm saved seed compared to 84.2% of large-scale farmers who used improved seed. They also found that 54.5% of smallholders bought maize seed from stockists whereas 39.4% bought maize seed from open markets.

Salasya et al (1998) also found that 45.6% of all large-scale farmers used some form of fertilizer application while only 23.1% of smallholders used fertilizers. However, the smallholders were found to apply considerably less fertilizer per hectare.

Land size was also found to have some correlation to the main type of agricultural seed used as well as the main source of agricultural seed. In a CIMMYT report of
1994 - Maize Seed Industries, Revisited - it emerged that the world area planted to improved maize seed was 49 million hectares whereas the area planted to local maize and other non-commercial seed was 35 million hectares. The CIMMYT (1994) report further found that in 1992 commercial varieties (hybrids and OPVs) accounted for 46% of seed used in developing countries. In the developed world, commercial varieties account for virtually 100% of all the seed used.

5.3. Conclusions.

5.3.1. Conclusions from the Farmer Survey.

From the farmer survey conducted, the following conclusions can be drawn;

i. In total 57% of the farmers till land below one (1) acre in size. Indeed, 40% of the farmers have between 0.5-1 acres of land.

ii. Twenty-five percent (25%) of the farmers practiced subsistence farming while 54% practiced subsistence and/or semi-commercial farming.

iii. The study also revealed that a correlation existed between size of land, farming activity, type of agricultural maize seed used, source of agricultural maize seed and source of information on maize seed. Farmers with over 5 acres of land were more likely to be engaged in commercial farming using improved maize seed whilst those with below 1 acre of land practiced subsistence farming using farmer saved seed.

iv. The research showed that 46% of the farmers used either hybrid seed or First Generation Open Pollinated Varieties (F1 OPV). Thirty-eight percent (38%) of the farmers used their own farm saved seeds.

v. The main marketing communication channels used by farmers were their friends and neighbors (86%), field days/demos (74%), the radio (65%). It was interesting to note that 54% of the farmers received information through local media including Church news!

5.3.2. Conclusions for the Seed Merchant Survey.

i. The study showed that 88% of the merchants use field days/demos to reach their target market, the farmers. Radio was used by 79% of the merchants and 71% used pamphlets/leaflets.
ii. Citizen Radio was the most popular audio media with 95% of the seed merchants using it. Coro FM and Kameme FM were used by 89% and 84% of the merchants respectively.

iii. Among the print media, the Daily Nation and Taifa Leo were the most popular channels with 67% and 44% of the seed merchants using them respectively.

iv. The seed merchants rated the radio as the most preferred marketing communication channel as well as the most cost effective channel.

v. In terms of perceived effectiveness, the merchants chose field days/demonstrations as the most effective marketing communication channels. The radio was also thought to be a highly effective marketing communication tool.

From the study we can conclude that the use of Field days/demonstrations and Radio as tools of marketing communication are effective and are more likely to achieve the desired effect. Barazas, which are popular with farmers but not popular with seed merchants, should be more utilized by seed merchants as should the Local Print Media. Posters, Pamphlets/Leaflets and other point of sale material do provide a “feel-good” effect, which may lead to seed purchase. However, their impact as marketing communication tools is questionable and their use should be investigated further.

Since “word of mouth” was found to be a popular marketing communication channel, (86% of all the farmers get information on new maize seed technology from their friends and neighbors), the challenge therefore to seed merchants is how to exploit this particular channel.

5.4. Recommendations.

i. The use of Field days, demonstrations and ASK shows should continue as these have been seen to be effective in reaching farmers. In the absence of the possibility of one-to-one visits especially among the smallholder farmers (the majority of farmers are small holders, 57% of farms are less than 1 acre) field days and agricultural shows offer the best possibility to get feedback from farmers and to interact with them at a personal level.

ii. The study found that informal and formal barazas as well as the local print media played a big role in disseminating information to the farming community. It
also emerged that the seed merchants did not take advantage of these communication channels. Seed merchants should liaise more closely with the MoA and also the Provincial Administration to be able to take better advantage of informal barazas and other locally organized gatherings.

iii. The use of TV was found to be ineffective as a communication channel. On the other hand, Radio was found to be a powerful tool. Regional Radio Stations such as Kameme FM, Sayare FM and Coro FM were found to be popular. Stations with national coverage such as Citizen FM should be used to create general awareness in a “shot gun” approach whereas more local stations should be used to create specific brand awareness in specific localities.

iv. To increase the effectiveness of pamphlets/leaflets and posters, it is the recommendation of this study that these be printed in local languages and including Kiswahili.

v. Seed merchants should endeavor to increase their brand worth from the farmer’s perspective. Brand awareness campaigns should be conducted so that the farming community is aware of the firms as well as their products. By so doing seed merchants will increase their probability of enjoying favorable “word of mouth” and thus take advantage of this powerful marketing communication tool.

This study has highlighted many pertinent issues relevant to maize seed marketing. These issues bring up new problems that need to be addressed through further research work. These include research work into the effectiveness of the various marketing communication channels, research into the channels that best influence farmers to make purchase decisions, i.e. which channels best motivate farmers to make purchase decisions of the various agricultural inputs. Research to measure effectiveness will add a useful dimension to the findings here in that seed merchants will not only be able to know which channels are getting their various messages through, they will also be able to know which ones are directly successful in increasing sales.
BIBLIOGRAPHY.


APPENDIX 1: QUESTIONNAIRE COVERING LETTER.

From The Dean School of Business Studies,
USIU – AFRICA,
NAIROBI.

To: WHOM IT MAY CONCERN.

RE: MR. C.K. GACHERU.

The above named MBA student is undertaking a research project in marketing communication channels involved in the marketing of agricultural seeds in Kenya.

Kindly accord him the necessary assistance. Any information given will be used for the purposes of this report only.

Your cooperation is appreciated.

Kind regards,

Dean School of Business.
USIU-AFRICA.
APPENDIX 2: FARMER QUESTIONNAIRE.

Instructions: Please tick [✓] the answer(s) that apply and complete the blank spaces.

1. Name. ____________________________

2. Occupation. ____________________________

3. Location of Farm. ____________________________

4. Size of Farm in Acres;
   - Less than 0.5 acres
   - 0.5 – 1.0 acres
   - 1.0 – 5.0 acres
   - 5.0 – 10 acres
   - 10 – 20 acres
   - More than 20 acres

5. How would you describe your farming activities?
   - Subsistence
   - Subsistence and semi-commercial
   - Semi-commercial
   - Commercial

6. What type of agricultural seeds do you use?
   - Farmer saved seed
   - Open Pollinated varieties
   - Hybrid Seed
   - Other (please specify) ____________________________

7. What is your source(s) of agricultural seeds?
   - From own stores
   - From neighbors/friends
   - From the market place
   - From seed stockists
   - Other source, please specify ____________________________

8. How do you get to know about new agricultural seeds?
   - From neighbors
   - From Friends
   - From the market place
   - From the Radio

55
9. Are you aware of Hybrid Maize seed from PANNAR?
   Yes □
   No □
10. If YES how did you get to know about Pannar Seed?

11. Do you use Pannar Maize Seed?
    Yes □
    No □
12. If YES, what are your reasons for use?

13. If NO, what are your reasons for not using?

14. How frequently do you use Pannar Seeds?
    Once per year. □
    Twice per year. □
    Other (please specify) ____________________________

15. What problems, if any, have you encountered in using Pannar Seeds?

__________________________
__________________________
__________________________

56
16. Can you suggest any improvements to Pannar Seeds?


17. Other Comments.


THANK YOU.
APPENDIX 3: SEED MERCHANT QUESTIONNAIRE.

Instructions: - Please tick [✔] the answer(s) that apply and complete the blank spaces.

1) Name of Seed Merchant (optional). _________________________________

2) Nature of Business.
   - Pasture seeds
   - Horticultural seeds
   - Cereal seeds
   - Other, please specify _______________________________________

3) Which media do you use to reach the farming communities?
   - Radio
     Kindly specify your station(s) of choice. _______________________

   - TV
     Kindly specify your station(s) of choice. _______________________

   - Print Media
     Kindly list your choice of Print media. ________________________

   - Field days/Demos
   - Barazas
   - Company Newsletter
   - Posters
   - Pamphlets
   - Other media? (Please specify). ________________________________

4. Kindly list, in order of most effective, your choice of communication channels. ________________________
5. Please indicate any other comments on communication channels in Kenya.

6. Kindly indicate the main communication problems that you face when dealing with farmers.

7. Suggest methods that can be used to alleviate communication problems mentioned in Q6 above.

8. Other comments?

THANK YOU.
APPENDIX 4: LIST OF THE 27 MAIN AGRICULTURAL DISTRICTS OF KENYA.

Eastern Province.
1. Embu.
2. Meru Central.
3. Meru South.

Central Province.
1. Kiambu.
2. Kirinyaga.
4. Thika.
5. Muranga.

Nyanza Province.
1. Gucha.
2. Kisii.
4. Migori.
5. Nyamira.

Rift Valley Province.
1. Keiyo.
2. Kericho.
5. Trans Mara.
6. Trans Nzoia.
7. Uasin Gishu.
Western Province.
1. Bungoma.
2. Busia.
4. Lugari.
5. Vihiga.
APPENDIX 5: BUDGET.
Time Budget - time wise the study will take about 6 months; most of that time will
be spent in the data collection phase.

Financial Budget - this will include, traveling expenses, accommodation and up-keep
expenses, stationary expenses and report preparation expenses.

Table 11: Financial Budget for the Project.

<table>
<thead>
<tr>
<th>Item</th>
<th>Approximate Cost (Kshs.)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>82,000</td>
<td>Sufficient to cover 10,000kms.</td>
</tr>
<tr>
<td>Accommodation</td>
<td>154,000</td>
<td>To cover 160 night outs.</td>
</tr>
<tr>
<td>Up-Keep.</td>
<td>130,000</td>
<td>For 160 days.</td>
</tr>
<tr>
<td>Stationary and other.</td>
<td>50,000</td>
<td>Including costs for report preparation.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>416,000</td>
<td>Approximate cost.</td>
</tr>
</tbody>
</table>
APPENDIX 6: LIST OF REGISTERED SEED MERCHANTS IN KENYA
(Y2002).
1. Kenya Seed Company.
2. EASEED.
3. Hortitec (K) Ltd.
4. Western Seed and Grain.
7. ADC Potato Research.
8. KARI.
9. Pannar Seed.
10. Vitacress Ltd.
11. Homegrown Ltd.
17. Hygrotech EA LTD.
18. VETAGRO.
19. Farmchem Seedlinks.
20. Monsanto.
21. VEGPRO.
22. Everest Enterprises.
23. Lagrotech.
24. Charles Gerald Ltd.
25. Freshco Ltd.
26. Mustard Seed.
27. Helena Seed.
28. Coil Products.
29. Equip Agencies.
30. Redshank Ltd.
31. Frigoken Ltd.
32. Chemusian Ltd.
33. Kabarak Ltd.
34. Amiran (K) Ltd.
36. Sulmac Co.
37. Simlaw Seeds.
38. OCD Nakuru.

(Source: Kenya Plant Health Inspectorate Services, March 2002).
APPENDIX 7: EXAMPLES OF ADVERTS IN AGRICULTURAL MAGAZINES AND JOURNALS.

General Recommendations for Growing Hybrid PHB 3253

By Farmchem Limited

Main Growing Areas for PHB 3253

This is a medium maturity hybrid ideally suited for medium to high potential areas in the medium altitude zones of Kenya, 1000-1800 meters above sea level. These areas are the coffee zones of Central and Eastern Provinces, Kisii, Nyamira, Narok, Trans Mara, Nkoroi, St. Mary's, Kakamega, Vihiga, Bunyoro, Mumias/Butere, Lugari, Busia, West Pokot and Kisii Marakwet. During the short rains (October rains), PHB 3253 can also be grown in the tea zones of Central and Eastern Provinces. PHB 3253 matures in 3-5 months (120-150 days) and has a yield potential of up to 10 tons/ha (600 bags/acre) when grown under good management.

Planting and spacing: For good maize yields, planting should be done at the recommended time. Evidence indicates that delayed planting always leads to reduced maize yields. Apart from time of planting, other planting practices such as method, plant pattern, density and depth of planting strongly influence the yield performance of maize. In the medium altitude areas, the ideal time for planting is March-April (before or at the onset of rains) during the long rains and October-November during the short rains. Row planting with 2-3 plants per hill (hole) is recommended for maize growing. Correct row spacing makes more efficient use of available light and also shade the soil surface more completely, thus reducing moisture evaporation as well as smothering weeds growing underneath. Low plant densities always lead to low maize yields. In Kenya, low plant densities reduces maize yields by as much as 40%.

Recommended Spacing for PHB 3253

<table>
<thead>
<tr>
<th>Area</th>
<th>75cm x 25cm, 1 plant per hill (hole)</th>
<th>75cm x 25cm, 2 plants per hill (hole)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5000 plants per hectare</td>
<td>5000 plants per hectare</td>
</tr>
</tbody>
</table>

In areas where intercropping is practiced, inter-row spaces should be wide enough to provide space for the intercrop. Maize should be planted at a depth that will ensure protection against rodents and birds and facilitate intimate contact with warm moist soil for good germination. A planting depth of 2.5-5cm is recommended. However, for dry planting, depths of about 5cm should be used to avoid germination that may be caused by false rains.

Fertilizer and Manure Use: Recommended economical rates of nitrogen and phosphorus fertilizer application are as follows:

<table>
<thead>
<tr>
<th>Area</th>
<th>KgN/ha</th>
<th>KgP&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;/ha</th>
<th>Types and combinations of common used fertilizers (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nyanza and Western Provinces</td>
<td>40</td>
<td>40</td>
<td>90DAP+100 CAN; 200 kg of 20:20:0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 SSP + 155 CAN</td>
</tr>
<tr>
<td>Medium zones of Eastern &amp; Central</td>
<td>50</td>
<td>50</td>
<td>150-250 kg of 20:20:0</td>
</tr>
</tbody>
</table>

Different methods of fertilizer applications exist. Because of its immobile nature in soils, phosphate fertilizer is often placed close to the maize rooting zone. Since small scale farmers plant in holes, a teaspoonful or soda/beer bottle cap of fertilizer is placed into each planting hole, the fertilizer mixed well and the seed planted. Depending on the area, CAN is top-dressed when the crop is a knee high (about four to six weeks after crop emergence).

Use of manure is known to improve the organic matter of the soil, soil moisture holding capacity and soil structure in general. Recommended rates of home manure vary from 2-8 tons/ha. In Central Province 2 tons/ha is sufficient for seasonal maize production while upto 8 tons/ha is required in the infertile soils of the semi arid areas. Manure may be mixed well with the soil before placing the seed.

The aforementioned are general guidelines, for specific issues regarding fertilizer types, rates, time and methods of application, farmers should contact the local agricultural extension officers.

Weed control: Weeds compete with maize for nutrients, water, and light and also host diseases and pests. Hence seeds should be suppressed till tasselling to avoid crop loss. Weeding intervals of 20-14 days after maize emergence is recommended. Two weedicings are adequate in low rainfall areas whereas up to three weedicings may be necessary in high rainfall areas.

Pre- or post-emergence application of herbicides can be used to control weeds. The amount to apply will depend on the locality as may be directed by the agricultural extension officer or the manufacturers.

Field pests: Many pests attack maize but the most important one is the stalk borer. Use of insecticides applied 3 weeks after plant emergence can control stalk borers. Some commonly applied insecticides include Dipthox at 40 kg/ha (or a pinch per plant), Bulldock at 40 kg/ha or Ambush 0.5 at 10 kg/ha

Harvesting: Maize matures when the ears and husks are dry, but the existence of black layer at the base of the kernels is the best indicator. Late harvesting of maize has several disadvantages namely damage by pests and diseases especially rodents and ear rot. It is important that the crop be harvested immediately after maturity to avoid losses. Grain should be well dried to moisture content of 13-15%, dressed and stored. Storage structures and containers/bags must be sprayed with disinfectants before storing maize grains.

Main features of PHB 3253

- PHB 3253 is a widely adapted hybrid with good yield potential.
- Has good disease tolerance to common rust, leaf blights, and cob rot.
- Adequate drought tolerance.
- Excellent standability.
- Good husk cover.
- High yield at high plant densities.
- Stay green character (important for livestock feed).
Kilimo News is a quarterly Newsletter published by the Ministry of Agriculture & Rural Development.

It is one of its kind backed by a top team of agriculturalists, veterinary experts, lecturers and research scientists in at agricultural based organisations. In every issue we will circulate 9000 copies to all stakeholders in the farming industry and farmers in the country through the Agricultural Offices and all agricultural shows through the Ministry stands. This is a wide distribution network for a technical magazine.

In addition 1000 copies will be distributed free of charge to all banks, financial institutions and their branches as well as top private companies, government and related Organisation Institutions such as United Nation Environmental Programme among others.

Make sure you reach your target potential buyers by advertising in the Kilimo News.

<table>
<thead>
<tr>
<th>ADVERTISING RATES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT INSIDE COVER</td>
<td>Kshs. 40,000</td>
</tr>
<tr>
<td>BACK COVER</td>
<td>Kshs. 45,000</td>
</tr>
<tr>
<td>BACK INSIDE COVER</td>
<td>Kshs. 40,000</td>
</tr>
<tr>
<td>FULL PAGE (INSIDE)</td>
<td>Kshs. 35,000</td>
</tr>
<tr>
<td>HALF PAGE (INSIDE)</td>
<td>Kshs. 25,000</td>
</tr>
<tr>
<td>QUARTER PAGE (INSIDE)</td>
<td>Kshs. 20,000</td>
</tr>
</tbody>
</table>

| FULL PAGE (INSIDE)                |   |
| HALF PAGE (INSIDE)                | Kshs. 20,000 |
| QUARTER PAGE (INSIDE)             | Kshs. 12,000 |
| EIGHTH PAGE (INSIDE)              | Kshs. 6,000  |
| 1 SPOT COLOUR (INSIDE)            | KSHS 3,500  |

Kilimo News is worth your promotional advertisements. Our marketing co-ordinator will be getting in touch with you for further discussion.

Looking forward to serving you.

Yours Sincerely

[Signature]

Mr. J. K. Ng’eno
CHAIRMAN KILIMO NEWS EDITORIAL BOARD.
KENYA SEED COMPANY LIMITED

at the Nairobi International Show

We offer Top Quality seeds including technical assistance.

(1) AGRICULTURAL SEEDS

(a) Seed Maize for
- High altitude: H627, H625, H625, H614
- Medium altitude: H513, H512, H511
- Drylands: PH01, DLC, KATUMANI
- Lowlands: PH1, PH04, DLC, KATUMANI

(b) Pasture Seeds
- Boma Rhodes, Elmha Rhodes, Mbarara Rhodes & Masaba Rhodes,
- Nandi Setaria
- Coloured Guinea
- Columbus Grass & Sudan Grass
- H8998, Fedha & Shaba

(c) Sunflower

(2) SMALL CEREALS

(a) Seed Wheat
- Available now - all your best varieties of Elite and 1st Generation status. Still in high demand and excellent in field performance:

ALTITUDES

<table>
<thead>
<tr>
<th>MBUNI/HIGH</th>
<th>MEDIUM</th>
<th>LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mbuni</td>
<td>K. Nyangumi</td>
<td>Ngamia</td>
</tr>
<tr>
<td>Kwale</td>
<td>K. Fahari</td>
<td>Duma</td>
</tr>
<tr>
<td>Pasa</td>
<td>K. Pala</td>
<td>Mbweha</td>
</tr>
<tr>
<td>Mbega</td>
<td>K. Nungu</td>
<td></td>
</tr>
<tr>
<td>K. Popo</td>
<td>K. Chiriku*</td>
<td></td>
</tr>
<tr>
<td>K. Tembo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Kongoni</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Tolerant to acidic soils

(b) Seed barley for both malting and animal feed: - varieties Tumaini and Bima

(c) Seed Oat - for both human and animal feed - variety S.18.

(3) SIMILAW - HORTICULTURE:

(a) - Gloria F1 Cabbage
- Pruktor F1 Cabbage
- Marcanta F1 Cabbage

(b) Tomato Cal J improved
- M82
- Roma VF
- Money Maker

(c) - Onion - Red Creole
- Sivan F1
- Grano 2000 F1
- BGS 71 F1

(d) - Carrot
- Nantes improved
- Chantenay improved

Also available are seed beans, peas, monel, seed flowers and herbs.

CONTACT US AT THE FOLLOWING ADDRESSES.

Headquarters
Box 555 Kitale
Tel: 0325-20941/6
Fax: 0325-20458

Simplaw
Box 40042, Nairobi
Tel: 02-215066/7/83
Fax: 02-332219

Cereals Division
Box 959, Nakuru
Tel: 037-211503/211630
Fax: 037-43768
AGRICULTURAL INFORMATION
RESOURCE CENTRE
Centre which offers Facilities and Products
Our Goal is Customer Satisfaction

VIDEO UNIT
- Video production
- Field recording
- Beta cam and Umatic
- Video editing
- Dubbing facilities
- Programme production from script to final product

D.T.P UNIT
- Design and layout of
  - Magazines
  - Brochures
  - Books
  - Posters
  - Cards
  - Logos

TRAINING UNIT
- Video- led communication skill courses
- Management and supervision courses with video case studies.
- Conference facilities available for up to 60 people
- A variety of oriental and traditional dishes
- Full board accommodation in self contained rooms
- A reference Library

RADIO UNIT
- Produces popular drama and magazine programmes which inform, educate and entertain.

Services include:
- Studio hire
- Field recording
- Editing facilities
- Dubbing facilities
- Training in radio production

INFORMATION UNIT
- Acquire and produce technical information.
- Disseminate Information in form of Pamphlets, booklets & magazines-kilimo news
- Advisory services to farmers

KADOC
- Acquire and disseminate relevant and up to date information
- Maintain comprehensive collection of world agricultural data base on CD-ROM
- Offer information and advisory services.

LIBRARY SERVICES
- Reference Materials
- User Service
- Indexing
  - Categorization
  - Abstracting
  - Classification of Books

For more information contact: The Director: Agricultural Information Centre
P.O. Box 66730 Nairobi • Tel: 446484, 442249 • Fax: 446467
KENYA SEED COMPANY LIMITED
P.O Box 550 Kitale Trans Nzoia (Head Office)
Tel: 0325-20941/6
P.O Box 40042, Kijabe Street, Nairobi, Kenya.
Telephone: 215066/7/83.
Fax: 254-02-332219, Cables “Seeds” Nairobi.

Choose The Right variety

1. SEED MAIZE HYBRIDS
   For high altitude: H 628, H 626, H 625, H 614, H 622
   For Medium altitude: H513, H 511, H 622, H 623
   For Dryland: DH1, DLC, Katumani

2. PASTURES
   Boma Rhodes & Elmia Rhodes

3. SEED WHEAT
   Elite & 1st Generation available: K. Mbuni, K. Kwale,
   K. Nyangumi, K. Ngamia, K. Mbega etc.

4. HORTICULTURE
   • Cabbage - Gloria, Riana, Pruktor, Rotan, Maja
                 & Marcanta etc
   • Onion    - Orient F1, Grano 2000F,
   • Tomato   - KENTOM F1, Zawadi F1,
                 Fortune Maker F1

Plus other seed requirements

KENYA SEED COMPANY
SIMLAW SEEDS

Growing Seeds for the Future
We offer Top Quality seeds including technical assistance

(1) AGRICULTURAL SEEDS

(a) Seed Maize for:
   High attitude - H627, H625, H614
   Medium attitude - H513, H512, H511
   Drylands - PH01, DLC, KATUMANI
   Lowlands - PH01, PH04, DLC, KATUMANI

(b) Pasture Seeds;
   Boma Rhodes, Elamba, Rhodes, Mbarara Rhodes & Masaba Rhodes
     - Nandi Sataria
     - Coloured Guinea
     - Columbus grass & Sudan grass

(c) Sunflower - H8998, Fedha & Shaba

Low Attitude:
   Ngamia, Duma, Mbwaha
   * Tolerant to acidic soils

(b) Seed Barley:
   for both malting and animal feed: varieties Tumaini and Bima

(c) Seed Oat: for both human and animal feed - variety S.18

(3) SIMLAW-HORTICULTURE

(a) Glorita F1 Cabbage, Praktor F1 Cabbage, Marcanta F1 Cabbage
(b) Tomato Cal J Improved, M82, Roma VF, Money Maker
(c) Onion - Red Creole, Sivan F1, Grano 2000 F1, BGS 71 F1
(d) Carrot, Nantes improved, Chantenay improved

Also available are seed beans, peas, monel, seed flowers and herbs

CONTACT US AT THE FOLLOWING ADDRESSES

KENYA SEED COMPANY LIMITED
AT KITALE A.S.K. SHOW

(1) AGRICULTURAL SEEDS

(a) Seed Maize for:
   High attitude - H627, H625, H614
   Medium attitude - H513, H512, H511
   Drylands - PH01, DLC, KATUMANI
   Lowlands - PH01, PH04, DLC, KATUMANI

(b) Pasture Seeds;
   Boma Rhodes, Elamba, Rhodes, Mbarara Rhodes & Masaba Rhodes
     - Nandi Sataria
     - Coloured Guinea
     - Columbus grass & Sudan grass

(c) Sunflower - H8998, Fedha & Shaba

Low Attitude:
   Ngamia, Duma, Mbwaha
   * Tolerant to acidic soils

(b) Seed Barley:
   for both malting and animal feed: varieties Tumaini and Bima

(c) Seed Oat: for both human and animal feed - variety S.18

(3) SIMLAW-HORTICULTURE

(a) Glorita F1 Cabbage, Praktor F1 Cabbage, Marcanta F1 Cabbage
(b) Tomato Cal J Improved, M82, Roma VF, Money Maker
(c) Onion - Red Creole, Sivan F1, Grano 2000 F1, BGS 71 F1
(d) Carrot, Nantes improved, Chantenay improved

Also available are seed beans, peas, monel, seed flowers and herbs

CONTACT US AT THE FOLLOWING ADDRESSES

Headquarters: Box 553, Kitale
Tel: 0325-20941/0
Fax: 0325-20458

Simlaw: Box 40042, Nbi
Tel: 02-215046/7/83
Fax: 02-332219

Cereals Division: Box 959, Nakuru
Tel: 037-211503/211630
Fax: 037-43768

RENYA FARMER 104, FEB/MAR 2000
Ministry Releases New Pannar Maize Varieties.

The Minister for Agriculture, Dr. Bonaya Godana, in September released two new Pannar Maize varieties, PAN 67 and PAN 99. The two will be sold alongside the already released PAN 5243.

Mid-Altitude Coffee Zones of Central and Eastern Provinces, Kisi, Narok, Nakuru, Siaya, Kisumu, Busia, Kakamega, Bungoma, West Pokot, Keiyo & Marakwet.

Double Cobber – very high yield variety, 35-40 bags/acre.
Tolerant to Grey Leaf Spot (GLS)
Semi – dent type grain.
Resistant to root lodging.
Good adaptability.
Good husk cover.

Mid – Altitude Coffee Zones of Central and Eastern Provinces, Kisi, Narok, Nakuru, Siaya, Kisumu, Busia, Kakamega, Bungoma, West Pokot, Keiyo & Marakwet.

RESISTANT to Maize Streak Virus (MSV).
TOLERANT to LOW NITROGEN LEVELS.
FLINT type grain.
SWEET – good roasting ability.
Drought tolerant, Quick maturity.
Cut yields H512 by 25%.
Good husk cover.

Mid to High Altitude Zones of Central and Eastern Provinces, Kisi, Narok, Nakuru, Siaya, Kisumu, Busia, Kakamega, Kericho, Bungoma, West Pokot, Keiyo & Marakwet.
Parts of Uasin Gishu and Trans Nzoia and Tea Zones in Central and Eastern Province.

High yilder, 35-40 bags/acre.
EXCELLENT GREEN MAIZE for roasting and boiling.
Semi – dent grain.
SWEET.
Good husk cover and standability.
Yields better than H512 and H513.

Tanzania had their National Agriculture exhibition at Morogoro and Regional agricultural show – Nane Nane in August 02 at Arusha in which EASEED (T) had participated and awarded 2nd best exhibitor.

EASEED Open Pollinated Maize Varieties available in Tanzania: - KILIMA, KITO, TMV –1 STAHA, UCA, TUXPENO.

A field day/training seminar was recently held at Rombo – Kilimanjaro region, for stockist and extension officers for Pannar Seed Varieties.

Newly introduced Hybrid Maize Pan 691 is suitable for Southern Highlands - altitude 1500 meters and above.

Hybrid Sunflower Pan 7352 is also now available.

Pannar Hybrid Varieties available as follows:

Pan 6549 Hybrid Maize
Pan 67 Hybrid Maize
Pan 6243 Hybrid Maize
Pan 691 Hybrid Maize
Pan 7352 Hybrid Sunflower
Kenya Seed Company is considering bids to meet the 90 thousand metric tonnes maize seed requirement for the Great Lakes Region. It has extended its tentacles into Uganda and Tanzania. In Uganda, KSC fully owns a subsidiary company, Ml Elgon Seed Company, while in Tanzania it owns Kilbo Seed Company. The company is also making inroads into Rwanda and Burundi. These efforts will ensure the distribution of top quality seed reaches all farmers in the region and hence guarantee food security. Kenyan Seed Company products include seeds of maize, pasture, sorghum, finger millet, beans, sunflower and vegetables.

EAST AFRICAN MAY 5-11 2003