# The Impact of Donor and NGO Activities on Maize Seed and Fertilizer Markets and Food Security in Malawi.

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# THE IMPACT OF DONOR AND NGO ACTIVITIES ON MAIZE SEED AND FERTILIZER MARKETS AND FOOD SECURITY IN MALAWI.

**(Case Study for Mitundu, Chiwamba and Chiponde EPAs, Lilongwe District).**

**BY**

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**(BSc. AGRICULTURAL ECONOMICS)**

**A PROJECT REPORT SUBMITTED TO THE FACULTY OF AGRICULTURE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE**

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**Declaration**

I hereby declare that the work embodied in this project report is the result of my own work and effort and has never been submitted for any award. Where other sources have been used, they have been rightfully acknowledged.

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**Approval by Supervisor, Head of Rural Development and Dean of Agriculture.**

We hereby declare that this project report is from the student's own work and effort and all other information used has been acknowledged.
This project report has been submitted with our approval.

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**Abstract**

*A study was carried out in Mitundu, Chiwamba and Chiponde EPAs to analyze the impact of donor and NGO activities on maize seed and fertilizer markets and food security in Malawi. Farmers, traders and officials were interviewed in both the production and trading activities. The study showed that the free input programme had negative impact on the commercial marketing of maize seed and fertilizer. There was reduced demand hence low volume of sales in wholesale and retail markets. It was further found that the study areas have few private traders in these agricultural inputs than soon after introduction of market liberalization. On the part of production the study results showed that there was positive impact on maize production due to use of fertilizer and improved maize varieties. This positive impact on yields was also related to farm size, and amount of fertilizer used. The study revealed that there was some disruption of retail market for fertilizers as normal supply channels were taken over by the project. Supplies of the maize seed already limited, were diverted from their usual retailers.*

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Above all, I thank the Almighty God for the life He has given me and all blessings showered on me.

## Dedication

To Lephan and Fauster.

My brother and sister, this is only a small clearing at the edge of the woods where you might observe a few of the trees as they prepare to set out independently to explore the great forest which yet lies beyond.

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## Acronyms

| | |
|---|---|
| AA | Action Aid |
| ACU | Agricultural Coordinating Unit |
| ADMARC | Agricultural Development and Marketing Corporation |
| APIP | Agricultural Productivity Investment Project |
| ATC | Agricultural Trading Company |
| DIFD | Department for International Development |
| ELDP | Evangelical Lutheran Development Programme |
| EPA | Extension Planning Area |
| EU | European Commission |
| FAO | Food and Agricultural Organization |
| FID | Free Input Distribution |
| MA&LD | Ministry of Agriculture and Livestock Development |
| MOAI&FS | Ministry of Agriculture, Irrigation and Food Security |
| MRFC | Malawi Rural Finance Company |
| NGO | Non- Governmental Organization |
| NSCM | National Seed Company of Malawi |
| ODI | Overseas Development Institute |
| SAPs | Structural Adjustment Programmes |
| SFFRFM | Smallholder Farmers Fertilizer Revolving Fund of Malawi |
| SPS | Starter Pack Scheme |
| SPSS | statistical package for Social Scientists |
| TIP | Targeted Input Programme |
| UNDP | United Nations Development Programme |
| USAID | US Agency for International Development |
| WVI | World Vision International |

## 1.0 Introduction

Beginning mid 1980s, Malawi has had a problem of food insecurity and this has increased concerns of Government, Donors, and NGOs. Yields of maize, the main staple food crop have continually declined over the past thirty years and the country has had repeatedly imported food over the past decades to make up for national deficits. This poor economic performance has been brought about by several factors including: external, internal policy distortions, and environmental among other important factors.

In agricultural sector, maize seed and fertilizer subsidy was the norm and marketing of fertilizer was under the monopoly of the non-profit making parastatal, the Smallholder Farmers Fertilizer Revolving Fund of Malawi (SFFRFM), established in 1983. Malawi imports all fertilizer and in recent years, external transport costs have accounted for over 40% of the landed cost of fertilizer. With maize seed, Malawi has had a maize research programme since 1952. Both hybrid and composite maize varieties have been made available to smallholder farmers since early 1960s, but they have not elicited widespread adoption by smallholders (Conroy, 1993).

In 1988, under market liberalization as condition tied to the World Bank's structural adjustment loans, Malawi Government liberalized seed production, pricing and marketing as well as removal of subsidies on maize seed and fertilizer which had negative effects on smallholders food production and agricultural related income. Following these negative impacts of SAPs on smallholders in early 1990s Malawi has also been severely hit by disaster problems (i.e. floods and drought) that have led to increased multiplication of NGOs and Donors with an effort to increase national household food production and income.

Currently the Government, Donor community, and NGOs have undertaken efforts to address these food shortages through community-based micro-projects. Donors including DFID, World Bank, Rockefeller Foundation, UNDP, and USAID as well as some NGOs, which include World Vision International, Action Aid, Evangelical Lutheran Development Programme, CADECOM and several others are involved in distributing fertilizer and maize seed to targeted smallholder farmers in various parts of the country.

This is long-term sustainability micro-projects, which some Donors and NGOs are carrying out with the overall goal of increasing income, setting safety net programmes and increasing food security amongst smallholder farmers.

### 1.1 Problem Statement

There has been a tremendous increase in the number of Donor Community and NGOs in the country particularly during the early 1990s. Different NGOs and Donors are carrying out development works throughout the country in various sectors such as agriculture, gender and development, education and many others.

In the agriculture sector food security interventions, which include the provision of free inputs, provision of savings and credit revolving loans schemes for farm inputs are the priorities among others.

Due to the magnitude of the various programmes that have been implemented by the various Donors in agriculture such as free distribution of inputs (maize seed and fertilizer) as well as NGOs participation, there has been concern about the negative impacts they might have on retailing of these inputs. Many Donors and NGO have been looking at the incremental gain in terms of food production from the free distribution of inputs and not their significant effects on commercial marketing of maize seed and fertilizer.

### 1.2 Rationale of the Study

Maize seed and fertilizer markets have a great role in economic performance of Malawi mainly because the economy almost depends on agricultural sector. It is from this perception that the intervention of Donors and NGOs in free distribution of inputs should be evaluated on how they affect the commercial marketing of maize seed and fertilizer and development of retailing networks in the country.

A substantial work has been done on short-term supply of inputs through Starter Pack Scheme and their impact on wholesale and retail markets, however implications of the long-term supply of inputs on market performance have not been sufficiently quantified.

Therefore it is the major interest of this study to assess the impact of Donors and NGOs on maize seed and fertilizer markets and food security as part of their review. The results will provide the policy-makers the relevant information for evaluating the performance of projects on economic contribution and cross-fertilization of ideas among Government, stakeholders, NGOs, and Donors for an effective integration of sectorial activities.

## 1.3 Study Objectives

### 1.3.1 Main Objective:

The study was set out to analyze the impact of Donors and NGO activities on maize seed and fertilizer markets and their effects on food security at household level.

### 1.3.2 Specific Objectives:

In order to assess the impact of Donors and NGO activities on input markets and food security, the following objectives were pursued:

- To find out the impact of free input distribution on sales of maize seed and fertilizer in wholesale and retail markets.
- To find out the impact of free input distribution on maize production at household levels.
- To examine the participation of private traders in maize seed and fertilizer markets.
- To assess seed and fertilizer sales to various categories of clients.

## 1.4 Hypotheses

- There has been no impact in demand of maize seed and fertilizer by smallholders in areas where Donors and NGOs are carrying their projects, due to development of dependency.

- There has been no impact in food security following Donors and NGOs Free distribution of maize seed and fertilizer in households that are benefiting from these projects.

## 2.0 Literature Review

Economic growth is the dominant factor in decreasing poverty-the experiences of China and Indonesia illustrate this vividly. However Malawi suffers low productivity, particularly in agriculture, and virtually stagnant growth in this sector. Some of the disillusionment about investment in agriculture stems from the fact that, in spite of the large investments that have been made by donors in this sector over past three decades, overall growth in agricultural productivity has been disappointing. Malawi's nominal per capita income of US$170 in 1995 (UNDP, 1995) is one of the lowest in the world and agricultural sector being the main provider of employment and export earnings. The narrow resource base is among the most serious challenges facing Malawi's economy. The agricultural sector is dualistic in nature comprising the smallholder sub sector and the estate sub sector.

During the 1960s and 1970s, many developing countries set up national seed production and distribution programmes to smallholder and estate sectors, with public agencies carrying out most activities. Often Donors aided these. For example, the FAO seed development improvement programme supported 60 countries during 1972-80 (FAO, 1987); the World Bank supported 13 national seed projects and 100 other seed-related projects during 1975-85; and USAID provided long-term support to the public bodies concerned with seed in 57 countries during 1958-87(FAO, 1987).

Despite the various economic reforms that have been implemented to agricultural sector in the country over the years, the economic environment has not changed much over the performance of the 1970s and early 1980s. Since 1988, Malawi's economy has been showing uneven signs of recovery. Some of the contributory factors are as follows:

A. The removal of subsidies on agricultural inputs at a time the economy was deteriorating and combined with devaluation of the currency, most smallholder farmers are unable to afford the inputs.

B. Market liberalization has probably been the single most detrimental reform on poor households. The implementation of this policy was rushed through without

putting mechanisms to encourage private sector participation to widespread households' persistent food insecurity.

Market liberalization, which led to devaluation of the currency, rising of prices, and removal of subsidies on inputs plus severe impact of the disasters in early 1990s left majority of the rural households in the country in food insecurity problems and also low agricultural related income.

In view of the limitations on agricultural productivity at household level, it is important to note that Malawi Government, Donors and NGOs supported the agricultural sector by supplying agricultural inputs through projects like Drought Relief Seed Distribution Project, 1992-93; Drought Recovery Inputs Programme, 1994-95; Supplementary Inputs Programme, 1995-96; and Starter Pack Scheme (SPS), 1998-99 (Longley et al, 1999). It has been suggested elsewhere that 1992-93 project was essentially concerned with disaster preparedness and prevention as well as relief intervention in response to 1991-92 drought. Both the 1994-95 and 1995-96 interventions were in fact aimed to promote the Government of Malawi long-term strategy for the wide spread adoption of hybrid maize for national food self-sufficiency. The strategy was threatened seriously in 1994 by the collapse of credit scheme and again in 1995 due to removal of the fertilizer subsidy (Longley et al, 1999). The 1995-96 project was intended to be a short-term measure to avoid the shortfall in national maize production associated with the fertilizer subsidy removal programme and the rising prices of agricultural inputs. The project aimed at assisting those considered to be affected by drought by providing seed and fertilizer inputs and seed only to those in high potential areas.

The SPS came in as a fourth in the series of large-scale agricultural inputs projects. SPS aimed to address the problem of food insecurity among rural households through provision of free seeds and fertilizer to all farm families in the country. This was different to previous project that had terms of geographical coverage (Longley et al, 1999).

The inputs, the majority of which were maize seeds and fertilizer were sufficient for 0.1 hectare. The scheme expressed concern to some of the Donors about the potentially negative impact on the commercial marketing of seed and fertilizer, which they had been

encouraging under the liberalization programme. However the Government of Malawi took the opposite view that the small size of the packs and the large number of participants who do not normally purchase improved seeds or fertilizer would have a minimal impact on both the wholesale and retail markets (Kherallah *et.al*, 2001).

In order to promote smallholder productivity, halt the declining soil fertility in the country, and food security, the Government, through assistance from the EU, adopted APIP. A pilot phase was initiated in 1997/98, where about 15000 metric tonnes of fertilizer were distributed to 150000 credit-worthy farmers. The programme was repeated in 1998/99 and 1999/2000, but only farmers who had not defaulted on their loans benefited. The SPS is a scheme funded jointly by the Government of Malawi, the Department for International Development (DFID), the European Commission (EU), and the World Bank. The SPS was primarily envisaged as a short-term action to help small-scale farmers improve their agricultural productivity and food security. The scheme was initiated during the 1998/99 season and about 2.8 million starter packs were distributed to all smallholder farm families countrywide. While the Government of Malawi was responsible for the purchase of the fertilizer in the programme, the Donors were responsible for the purchase of all the seeds (Kherallah *et.al*, 2001).

The SPS and APIP have been associated with the bumper crops amongst the majority of the smallholder farmers in 1998-2000. However, the sustainability of these programmes is questionable since they are supported by Donor funds and are expensive to implement. Furthermore, there is fear that these types of programmes perpetuate a dependency syndrome among the smallholder farmers and that distribution of the inputs displaces the sales of private traders, thereby distorting the market. According to Longley (1999), more permanent solutions are needed to improve smallholder agricultural productivity and food security in Malawi.

## 3.0 Methodology

### 3.1 Data Collection Method and Sources

The study used both primary and secondary sources of information to come up with relevant data. The primary sources of information were the smallholder farmers, wholesalers and retailers and officials at both head office and field level.

For seed industry Monsanto Seed Company was interviewed, while on part of fertilizer SFFRFM, ADMARC, Farmers World, Hardware and General Dealers, Kulima Gold, and Agricultural Trading Company were interviewed. At head office level, the interviews were aimed at establishing the role that traders were playing in free input distribution and in some cases assessing whether the programme had affected the traders activities. Apart from interviewing the officials at the head office, officials at field level were interviewed aiming at assessing whether there was reduced demand in their agricultural inputs following free input distribution. Farmers' interviews were to provide information on food production, income levels and usage of inputs and effects on purchases from retailers.

The information that the questionnaire collected on food security included:

- Crop production i.e. type of crop grown, varieties, cropped area, yield and input sources.
- Type of input intervention to ensure sustainable food security.
- General impact of free input distribution on food security in the area.

The secondary sources of information consisted of published and unpublished documents from both NGOs and concerned input institutions.

### 3.2 Study Area

The study was conducted in Lilongwe district. Three EPAs were randomly selected because of NGOs that are dealing in free input distribution. The study was carried out at Mitundu, Chiwamba and Chiponde EPAs where Evangelical Lutheran Development Programme, Action Aid Malawi, and World Vision International are implementing development projects that included food security respectively. Several input traders dealing in both fertilizer and maize seed are found in these areas. These input traders include ADMARC, Farmers World, Hardware, and General dealers, Kulima Gold, and Agricultural Trading Company. These areas were also selected because there were within the accessible distances.

### 3.3 Sampling Design

A multi-stage simple random sampling technique was employed to draw a sample. The selection of Mitundu, Chiwamba and Chiponde EPAs was considered to be first stage. The second stage was selection of sections from which two or three villages were also selected depending on the availability of beneficiaries in the areas. The final stage was the selection of individual households from different villages under these sections to be interviewed. A total of 60 farmers, 1 seed company, 15 fertilizer and maize seed traders were selected and interviewed, and also NGOs officials were interviewed using a checklist.

### 3.4 Analytical Technique

Descriptive analysis, which involves the use of frequencies, and percentages, was used for data analysis. Cross tabulations were used to determine the level of association and relationship among variables such as source of inputs, quantities received and their impacts on marketing of fertilizer and maize seed. A Statistical Package for Social Scientist (SPSS) was used to analyze the data.

## 4.0 Results and Discussion

### 4.1 Sex of Household Head

The study interviewed a sample of 60 respondents, 50% of the sample were males and the other half were females. From Table 1, it can be noted that 38.3% of beneficiaries were World Vision beneficiaries, 23.3% were Evangelical Lutheran Development Programme beneficiaries Action Aid and TIP beneficiaries were 21.7% and 16.7% respectively.

TABLE 1: PERCENTAGE OF HOUSEHOLD BY AGENCY

| **AGENCY** | **N** | **%** |
|---|---|---|
| WVI | 23 | 38.3 |
| ELDP | 14 | 23.3 |
| AA | 13 | 21.7 |
| TIP | 10 | 16.7 |
| TOTAL | 60 | 100 |

Table 1 results show that NGOs are taking large proportion in free input distribution than Donors and this could be so because Donors give assistance through government than directly interacting with rural communities.

### 4.2 Crops Grown

A total of 60 households were sampled as described in chapter 3. The study found out that households interviewed were growing different crops including maize, sweet potato, cassava, Irish potato, groundnuts and soybeans. All households reported that they were growing maize for food security reasons. This is clear that the study areas regard maize as main staple food. According to Marsland, (1996), Smale *et al* (1998), farmers consider self-sufficiency in maize production to be most important way than purchasing food. For

those households that grew tobacco and soybean, the study results found these crops were grown for income purposes as they gave high returns than groundnuts and other crops grown by the farmers. As such farmers reported that sweet potato, cassava, Irish potato, and groundnuts were grown for both food security and cash reasons.

TABLE 2: GROWN CROPS- PERCENTAGE OF HOUSEHOLDS

| Crop Grown | Percentage of households |
|---|---|
| Maize | 100 |
| Groundnuts | 59 |
| Sweet Potato | 53 |
| Cassava | 33 |
| Irish Potato | 24 |
| Soybean | 23 |
| Tobacco | 18 |

### 4.3 Acquisition of Maize Seed and Fertilizer in 1999-2001

The availability and accessibility of seed is very important for continued cultivation of any crop. For the past three agricultural seasons (1999-2002) a great percentage (53.3%) obtained their maize seed through free program and 46.7% used seed, which they either bought, saved from previous season or input loan scheme. The study found 76.7% to have accessed appropriate fertilizer from free programs while 23.3% accessed enough fertilizer from either loan scheme or bought with their own cash.

Out of the 45 beneficiaries who were interviewed to have accessed fertilizer from free programme, 15.2% mentioned to receive fertilizer from NGO only, 23.9% had access to TIP programme, 4.3% were once Starter pack beneficiaries. It was found that 56.5% benefited from two programmes from which 76.9% benefited from both TIP and NGO and 23% had benefited from both NGO and Starter pack. This might be so because starter pack that was introduced in 1998-99 season was replaced by TIP in 2000/01 agricultural

season. The fact that the government introduced Targeted Input Programme (TIP), the number of beneficiaries was reduced countrywide and this could be the reason that NGOs intervened in distributing free inputs. NGOs could be seen as less active from 1999-2001 seasons because the government and donors provided free packs containing 15 kg of fertilizer and 2 kg of improved maize seed and 1 kg of legume seed for 2.8 million households (Levy, 2003).

The study also found majority of the interviewed households (60%) had no access to loan scheme of agricultural inputs in the study areas. This shows that credit is a serious problem for both maize seed and fertilizer in the study area. The study further revealed that those people who had access to input credit could source from APIP, MRFC and 1.7 % from other farmers. However, 13.3 % mentioned community seed multiplication programme to have given them seeds during time of planting. This implies that the area has less input credit institutions for the people to access them.

TABLE 3: PREFERRED INPUT INTERVENTION

| INPUT INTERVENTION | N | % |
|---|---|---|
| CREDIT | 42 | 70 |
| FARM ACQUISTION | 11 | 18.3 |
| FREE HANDOUTS | 7 | 11.7 |
| TOTAL | 60 | 100 |

Despite the area having a problem of input credit institutions, table 3: presents that 70% of the households stated credit is important in increasing agricultural production in any society. This implies that many households in the study areas preferred credit as better intervention to ensure sustainable maize seed, fertilizer and food security and 30% preferred farm acquisition and free hand outs.

## 4.4 2002-03 Maize Seed Acquisition.

### 4.4.1 Source Agency

With the country once again faced a food crisis in 2001-02, TIP and NGOs responded by increasing the number of beneficiaries in 2002-03 season. According to Levy (2003) TIP increased beneficiaries to 2.8 million beneficiaries in 2002-03 from 1 million in 2001-02 season. It can be seen that acquisition of maize seed and fertilizer in 2002-03 agricultural season was diversified. The study found that farmers could acquire inputs through free distribution programme (TIP and NGOs), buy from retailers, credit institutions and seed from the previous season. About 73.3% of the households stated that the maize seed planted in 2002-03 agricultural season was from free programme.

TABLE 4: SEED ACQUISITION IN 2002-03 AGRICULTURAL SEASON

| AGENCY | N | % |
|---|---|---|
| FREE PROGRAMME | 44 | 73.3 |
| LOAN | 8 | 13.3 |
| RECYLED | 6 | 10 |
| PURCHASED | 2 | 3.4 |
| TOTAL | 60 | 100 |

Table 4 results show that apart from free seed programmme, the other means that were used to get maize seed were through credit institutions, seeds saved from previous season and buying from seed retailers such as ADMARC.

From table 5 below results show that 47.7% of those who were free seed beneficiaries acquired their maize seed from NGOs only against 18.2% who were TIP beneficiaries only. However, the study found that 34.1% benefited from both TIP and NGO free input programme.

TABLE 5: FREE INPUT PROGRAMME

| FREE INPUT PROGRAMME | N | % |
|---|---|---|
| NGO | 21 | 47.7 |
| TIP & NGO | 15 | 34.1 |
| TIP | 8 | 18.2 |
| TOTAL | 44 | 100 |

Many of the farmers, regardless of whether they acquired maize seed either through free seed programme or not, stated that seed acquisition gave them many problems. About 70% of the households stated that they found problems in acquiring maize for 2002-03 planting season and planted very late. The most frequently cited reason for planting late was unavailability of seeds to most households because TIP and NGOs distributed inputs after first rains. Slightly lower proportions of households (13.4%) who could buy and use previous season seeds planted earlier.

Though 61.6% preferred to acquire maize seed on their own but most households frequently mentioned lack of cash to buy seed as major problem and only 3.4% could manage to buy maize seed on their own in the study areas (table 4 above). Although farmers need fertilizer, as soils are poor, and improved seed, but they cannot afford to buy it due to a combination of price increases in recent years and weak purchasing power. In 2000-01, 2001-02 and 2002-03 only one-third of smallholder farmers bought seeds and fertilizer, and those who did buy, bought small amounts (Levy, 2003). Another problem that was considered to be very significant was that when the farmers attempted to keep their own seed, they lost most of it through pest attack. They attributed this problem to lack of money to purchase insecticides such as acetylic. Table 4 above indicates that only 10% could use seed of previous season. This is clear indication that households in the study had no proper storage facilities.

Although getting seed on loan from credit programme such as Farmers World covered 13.3%, but only 26.7% of the respondents could support this type of acquiring seed. This could be so because some 73.3% viewed credit as a risky way of acquiring inputs,

because in most cases credit institutions were grabbing property of any beneficiary who happened to default. However beneficiaries reported that sourcing inputs on credit gave them enough inputs since they were able to get enough inputs.

### 4.4.2 Knowledge of Varieties

Knowledge is important for adoption and improvement of any agricultural technology. The study found that households in the study areas had knowledge about the type of seed varieties they received and grew. The study revealed that 88.3% knew name of the variety that they grew in 2002-03 season. The results show that 80% grew hybrid in 2002-03 and only 10% indicated to have grown local maize only. Table 6 shows planted varieties in 2002-03.

TABLE 6: PERCENTAGE OF PLANTED VARIETIES

| TYPE | % |
|---|---|
| HYBRID | 80 |
| LOCAL | 10 |
| OPEN POLLINATED VARIETIES (OPV) | 10 |

ACU (2003) reported that free input distribution provided some 71% of smallholder hybrid seeds and 10% of Open Pollinated Varieties. Agricultural researchers have found that farmers in Malawi generally prefer the semi-flint varieties MH 17 and MH 18 above other hybrid types on account of their own good storage and household processing characteristics (Blackie et al, 1998; Smale et al, 1998). The study also revealed that 77.4 % of those who grew hybrid maize mentioned MH 18 against 22.5 % of those who planted NSCM 41.

### 4.4.3 Quantities of Maize Seed and Land Holding Size.

Table 7 results indicate majority of the sampled households (68.3%) planted seed of equal or more than 10 kg on their cropped areas. The study further found 34.1% who planted more or equal to10 kg maize seed planted on cropped areas of 1.5-2.5 acres,

while 31.7% and 29.3% grew on land holding size of 1 acre and greater than 2.5 acres respectively.

TABLE 7: INPUT USAGE PER LAND HOLDING SIZE

| AMOUNT | ACREAGE GROWN AND PERCENTAGES | | | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 acre | | >1-1.5acres | | >1.5-2.5 acres | | > 2.5 acres | | | |
| | N | % | N | % | N | % | N | % | N | % |
| ≥ 10kg | 13 | 31.7 | 2 | 4.9 | 14 | 34.1 | 12 | 29.3 | 41 | 68.3 |
| < 10kg | 8 | 42.1 | 5 | 26.3 | 2 | 10.5 | 4 | 21.1 | 19 | 31.7 |
| TOTAL | 21 | 35 | 7 | 11.6 | 16 | 26.7 | 16 | 26.7 | 60 | 100 |

Few respondents (31.6%) who had maize seed of less than 10kg planted cropped area of more than 1.5 acres. This could be so because some respondents used seed close to 9kg, which was enough for 2.5 acres depending on the plant station spacing. ACU (2003) reported that the seed rate per hectare recommended by MoAI&FS was 20kg/ha; therefore 9kg could be close enough to 0.5 hectare. The study also found free seed programme to have distributed maize seed that represented 73.3% of the planted surface against 13.3%, 10% and 3.4% of loan scheme, farm saved and purchased from seed retailers respectively.

## 4.5 2002-03 Fertilizer Acquisition

### 4.5.1 Source Agency

Soil fertility is a much discussed topic in the country and is often interpreted, in fertilizer terms, as mainly a need for N and P. Data collected on the fertilizer revealed that out of the 60 farmers who were interviewed 75% used fertilizer from free input program. ACU (2003) indicated that 18% of interviewed farmers in the northern region would have access to appropriate quantities of fertilizer, 44% reported to have fertilizer access in central region and in southern region access to appropriate quantities of fertilizer was 58%. The study also found that 15% and 10% sourced their fertilizer through loan scheme and purchased on cash respectively. However, the study found that fertilizer use could be seen to correlate more closely with wealth than the size of the cropped area.

Almost all farmers (88.9%) who benefited from loan scheme frequently mentioned APIP and MRFC as their source of credit. Thus, the loan beneficiaries were tobacco growers and had assets, which could have secured them to easy accessibility of loan. The study found 45% of the respondents preferred either buying fertilizer through their own cash or taking credit. This could be so because the respondents reported that 10kg or 15kg packs of fertilizer were not enough to meet their demands, as a result they couldn't produce to the maximum. It was found that the majority of fertilizer recipients applied on 1 acre cropped area and some on more than 2.5 acres. Table 7, gives the details on how the free fertilizer was used against cropped area.

TABLE 8: INPUT DISTRIBUTION PER LANDHOLDING SIZE

| AGENCY | SIZE OF CROPPED AREA | | | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 acre | | >1-1.5acres | | >1.5-2.5acres | | >2.5acres | | | |
| | N | % | N | % | N | % | N | % | N | % |
| FREE | 15 | 33.3 | 6 | 13.3 | 11 | 24.4 | 13 | 29 | 45 | 75 |
| LOAN | 4 | 44.5 | 1 | 11.1 | 2 | 22.2 | 2 | 22.2 | 9 | 15 |
| PURCHASED | 2 | 33.3 | 0 | 0 | 3 | 50 | 1 | 16.7 | 6 | 10 |
| TOTAL | 21 | 35 | 7 | 11.6 | 16 | 26.7 | 16 | 26.7 | 60 | 100 |

Results from Table 8 show that 46.6% of the households applied free programme fertilizer on land holding size of less than 1.5 acres. It was found that 66.7%of those who purchased their own fertilizer applied on areas of more than 1.5 acres and also 55.5% who got fertilizer through loan scheme applied on the cropped area of the same size to 66.7%. It was observed that a large proportion of farmers fell in the category of applying fertilizer on field size of more than 1 acre because NGOs distributed fertilizer in packs of 50 kg comparing to TIP which distributes either 10kg or 15 kg packs that are not enough for 1acre. For example universal SP programmes of 1998-99 and 1999-2000 provided packs containing 15kg of fertilizer, but after two good harvests, to which universal SP made a substantial contribution, the government and donors agreed to scale down the programme and distributed reduced fertilizer packs of 10kg to poorest households (Levy

2003). Therefore most of those who applied fertilizer on 1-acre field were TIP beneficiaries. It was reported during the interviews that some households could register more than one individual in a household for TIP such households were advantaged to apply on fields of more than 1 acre.

### 4.5.2 Quantities of Fertilizer and Landholding Size

The study further found that 50% of those who had less than 100kg of fertilizer applied on 1-acre area against 31.3% of those who had greater or equal 100kg fertilizer packs. However, those farmers who had greater or equal to 100kg fertilizer packs (68.7%) applied fertilizer on land holding size of greater than 1acre. Table 9 below gives information on how the distributed fertilizer was used by farmers in terms of application on different land holding size.

TABLE 9: FERTILIZER ALLOCATION PER CROPPED AREA

| AMOUNT | SIZE OF CROPPED AREA | | | | TOTAL |
|---|---|---|---|---|---|
| | 1 acre | >1-1.5 acres | >1.5-2.5 acres | >2.5 acres | |
| ≥ 100kg | 31.3 | 10.4 | 27.2 | 31.3 | 80 |
| < 100kg | 50 | 16.7 | 25 | 8.3 | 20 |
| TOTAL | 35 | 11.6 | 26.7 | 26.7 | 100 |

From table 9 above, results indicate that 50% of the farmers having less than 100kg fertilizer applied on fields greater than 1 acre. This implies that most farmers did not apply recommended rates of fertilizer to their maize whatever the size of the field. It was observed that most farmers applied less than recommended rates of fertilizer so that the entire field area should be applied. It must be noted that 1-hectare requires 4-50kg bags of 23:21:0 + 4S at recommendable rate and 1 hectare of land is equivalent to 2.5 acres of cropping area (MoA&I, 1999). From Table 8 it has also been seen that 31.3% of those who had fertilizer of greater or equal to 100kg applied on 1-acre field. This might be so because some sold to wealthier households and could not reveal such information. Even though suggestions were given that people could have applied more than recommended.

### 4.6 Impact of Free Input Distribution

#### 4.6.1 Impact on Input Markets.

The study sought views from the farmers if they understand or know the objectives of Free Input Distribution (FID) by NGOs and Donors and if there has been significant impacts done on maize production and marketing of maize seed and fertilizer from retail markets in their areas. Almost everybody (93.3%) was able to know why NGOs and Donors are distributing free farm inputs in their areas. Most farmers frequently reported that the ultimate goal of free input distribution was to empower the communities through efficient use of fertilizer and improved maize seed in order to increase food production and income base hence poverty reduction. It was reported that free input distribution would help the marginalized households to get inputs for increased agricultural production in the area. The study also found that 91.7% of respondents stating that the free input distribution had influenced their way of acquiring agricultural inputs.

TABLE 10: KNOWLEDGE ON OBJECTIVES AND IMPACT OF FID

| | OBJECTIVES | | IMPACT | |
|---|---|---|---|---|
| | N | % | N | % |
| YES | 56 | 93.3 | 55 | 91.7 |
| NO | 4 | 6.7 | 5 | 8.3 |
| TOTAL | 60 | 100 | 60 | 100 |

From Table 10 results, it shows that big a proportion of respondents had knowledge of NGO activities, ultimate goal and as well as impact it has done to both food production and way of acquiring maize seed and fertilizer.

TABLE 11: IMPACT OF FID ON MAIZE SEED AND FERTILIZER PURCHASES

| **WAY OF IMPACT** | **N** | **%** |
|---|---|---|
| Stopped/reduced buying | 43 | 71.7 |
| Buying more maize seed and fertilizer | 13 | 21.7 |
| None | 4 | 6.7 |
| Total | 60 | 100 |

Out of a total of 60 farmers interviewed to determine how the free input distribution scheme had influenced their source of fertilizer for the past 2 years, 71.7%. Table 11 above shows that the scheme had reduced the buying of fertilizer and maize seed from retail markets. Farmers said that they depended on free input scheme other than going for either loan scheme or purchasing these inputs from the retailers. Only 21.7% responded that they might buy maize seed and fertilizer from retailers.

According to Longley (1999), the starter pack scheme had some negative impacts on some of the retail shops although other factors influenced the market situation too. Although market liberalization had a positive effect enabling retailers to tap on alternative suppliers but on the other hand currency devaluation was found to have negative effect through its sudden major increases in the cost of inputs.

The study found that 70.8% and 78% of those farmers who used greater or equal to 100kg and 10kg of fertilizer and maize seed respectively could not go to buy fertilizer and seed from retail shops. 20.8% and 19.5% of those who used more or equal to 100kg fertilizer and 10kg maize seed beneficiaries respectively were in position of buying more of fertilizer and maize seed from retailers. It can be seen from Table 12 below that those farmers who received less than 100kg fertilizer and 10kg maize seed majority of them 75% and 57.9% respectively responded to have stopped or reduced buying fertilizer and maize seed from retail markets against 25% and 26.3% of those who bought these inputs from retail markets.

TABLE 12: WAY OF BUYING INPUTS

| | | IMPACT | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|
| | | Stopped/reduced buying inputs | | Buying more inputs | | None | | | |
| | | N | % | N | % | N | % | N | % |
| FERTILIZER | ≥ 100kg | 34 | 70.8 | 10 | 20.8 | 4 | 8.3 | 48 | 80 |
| | < 100kg | 9 | 75 | 3 | 25 | 0 | 0 | 12 | 20 |
| | TOTAL | 43 | 71.7 | 13 | 21.7 | 4 | 6.7 | 60 | 100 |
| MAIZE SEED | ≥ 10kg | 32 | 78 | 8 | 19.5 | 1 | 2.5 | 41 | 68.3 |
| | < 10kg | 11 | 57.9 | 5 | 26.3 | 3 | 15.8 | 19 | 31.7 |
| | TOTAL | 43 | 71.7 | 13 | 21.7 | 4 | 6.7 | 60 | 100 |

The study further assessed how the 2002-03 season source of agricultural inputs influenced buying of inputs. It was found that out of those farmers who received free fertilizer from NGOs and Donors 75.6% could not go to buy fertilizer from retail markets and only 17.8% could have gone to buy fertilizer from the retail shops. Similarly, 75% of free seed beneficiaries could not have gone buying seed from retail shops against 18.2% who were able to buy maize seed. The reason for those who benefited from free programme and went buying from retailers was the inadequacy of fertilizer and seed, which they received, could not be enough for their cropped areas.

Free Input Distribution affected different traders in different ways. The study found most traders who depended their fertilizer supplies from SFFRFM were deprived of this source while those with links to other importers opted for this alternative supply. The study also found that since 1999 there has been stagnation of fertilizer sales. Basing on the crop area and application rates recommended by MoAI&FS, Guide to agricultural production and selected crops, the potential fertilizer consumption in Malawi is well over 547,000MT rain fed agriculture only (Kamchacha, 2003). The study found that the free input scheme could have affected the sales. The study found that in 2002-03 SFFRFM sales dropped by 18.4% however at head office the sales were slightly higher. This could have been so because there was carry-over to most of its regular customers because of lower sales of

fertilizer due to free input distribution. The other reason given was that their regular customers could have switched to other supplies such as Kulima Gold and Farmers World who are also directly importing fertilizer. The study found that large a percentage of the sales of SFFRFM went to free input distributors and this contributed to loss of their regular customers to other fertilizer importing companies. Longley, (1999) reported that 1998-99 starter pack scheme affected fertilizer sales to regular customers of SFFRFM as it sold 98% of its fertilizer stocks to SPS programme and its sales reduced from 10,521MT to 9171MT of 23:21::0+4S and 7376MT in 1997 to 3308MT in 1998. In the study areas, it was found that ELDP distributed 10MT of 23:21::0+4S and Urea and WVI distributed 16MT of both types of fertilizer, this excluded TIP since it was at national level. However, at national level TIP distributed 1500MT of Urea and in Lilongwe district where the study was conducted both TIP and NGOs distributed 27MT compound fertilizer and 27MT Urea (ACU, 2003). All input traders (100%) dealing in both fertilizer and maize seed in the areas where the study was conducted reported that free input distribution affected their retail marketing of these inputs and also supplies of these inputs either positively or negatively. These traders were Hardware and General Dealers, ADMARC, Kulima Gold, Agricultural Trading Company (ATC) and Farmers World. The study revealed that all traders (100%) were negatively affected by the scheme. Their volume of sales decreased compared to what they sold in the previous season when only few households were targeted by both TIP and NGOs.

TABLE 13:SALES OF 50KG-BAGS OF FERTILIZER AND 10KG OF MAIZE SEED

| | YEAR | INPUT AGENCY | | | | |
|---|---|---|---|---|---|---|
| | | H & G DEALERS | KULIMA GOLD | FARMERS WORLD | ADMARC | ATC |
| FERTILIZER | 2001-02 | 3211 | 5352 | 3459 | 692 | 1254 |
| | 2002-03 | 2837 | 4612 | 3200 | 230 | 1036 |
| MAIZE SEED | 2001-02 | 255 | 641 | 625 | 405 | 1215 |
| | 2002-03 | 220 | 250 | 535 | 350 | 700 |

From Table13 above, the results represent volumes of sales of fertilizer and maize seed from these trading institutions. It could be seen that all the traders registered lower sales in 2002-03 season. It should be noted that in 2001-02 the country faced a food crisis, therefore TIP scaled up to 2.8 million beneficiaries in 2002-03 increasing from 1 million beneficiaries in 2001-02 season (Levy, 2003). And the consumption of fertilizer was slightly higher 174957MT in 2002-03 against 166978MT in 2001-02 while that of seed were 9600MT in 2002-03 against 5400MT in 2001-02. It was found that the increase in national use of inputs was a result of free input distribution. The study found that more sales of inputs were done at head offices such as SFFRFM head office, Farmers World head office and Monsanto whereas at outlets the sales were negatively affected. For example Monsanto Seed Company sold 9600MT in 2002-03 agricultural season from which 7200MT were sold to free input distribution programme against 2400MT to direct traders whilst in 2001-02 season the study found Monsanto to have sold 5400MT from which 2700MT were sold to free input programme and the other half was sold to direct traders.

The study found that since 1999 Seed Company has been registering higher sales to free input distributors such as NGOs and TIP. However, commercial sales to smallholder sector through its outlets were adversely affected by the free input distribution of the input by NGOs and TIP. As it has been established earlier on, the study found most smallholder farmers that received free seed not to supplement their requirements of cropped areas with extra purchases, rather they used recycled maize seed. The study further found that other households received more than one pack and also the poor households tended to sell the pack received to relatively rich households, therefore these factors tended to reduce demand of maize seed from retail markets.

Table 14 below, gives the commercial sales of Monsanto Seed Company from 1999 to 2002-03 agricultural seasons. The table indicates that the Company had lower volume of sales in 2000-01 and 2001-02 season and during this period free input programme appeared to have reduced their purchases. This is clearly an indication that the sales of

the company were influenced by free input distribution programme and supplied much to free input distribution programme.

TABLE 14: MONSANTO MAIZE SEED SALES

| | 1999-2000 | 2000-01 | 20001-02 | 2002-03 |
|---|---|---|---|---|
| FREE INPUT | 9000 | 2500 | 2700 | 7200 |
| DIRECT TRADERS | 2000 | 1700 | 2700 | 2400 |
| TOTAL | 11000 | 4200 | 5400 | 9600 |

(All figures are in metric tones)

Unlike regular customers of SFFRFM, customers of Monsanto had no problems in purchasing maize seed from head office. Nevertheless, the company managed to contain extra demand induced by input programme through importation of maize seed from sister companies in the region.

The study also examined the participation of the retailers in the maize seed and fertilizer marketing. The study found that the scheme affected the supply of inputs to local entrepreneurs who had developed a linkage with SFFRFM and seed companies. Although all the traders interviewed (100%) gave information that the free input distribution programmme had changed the participation of traders in the study area, it was found that 80% of the traders interviewed reported that after market liberalization there was massive traders in the areas where the study was conducted who participated in the input marketing. However, after the introduction of free input distribution programme, the traders started to close down their shops. The reason was that most traders in the study areas were registering lower sales and had carry-overs as a result of poor business performance led most of the them closing down their shops. Another reason that was raised by traders for closure of retail shops was lack of input supplies such as fertilizer to smaller trading institutions because their usual suppliers concentrated their supplies to free input distribution programme hence little could be left for them. It was found that large trading institutions such as Kulima Gold, Farmers World, ATC, ADMARC and Hardware and General Dealers are currently doing their businesses. This suggests that

although free input distribution assist marginalized smallholder farmers to access agricultural inputs, but it was detrimental to development of the local entrepreneurship in input market in the study areas.

The traders also reported that despite the free input distribution other economic factors such as currency devaluation had a negative impact through sudden major increase in costs of these inputs. One trader argued that a 2kg maize seed and 10kg fertilizer TIP pack could not be sufficient for one hectare. He cited that high poverty levels with little or no purchasing power contributed to lower sales of inputs. Another factor cited was large quantities distributed by NGOs (10kg maize seed pack and 50kg fertilizer pack), which had negatively affected the sales and are threat to local entrepreneur development. It should be noted that development of local entrepreneurs can be affected by a lot of factors but this study could not reach out to those instead it has established that free input distribution was variable which explained the lower participation or closure of retail shops in the study areas.

### 4.6.2 Maize Production and Food Security

NGOs and Donors introduced free input distribution programmes as a response to insufficient maize production and food insecurity. Maize is regarded as an important part of most Malawians' diets. However, most rural households are not self-sufficient in maize from one harvest to the next. Most of the households run out food from three months before harvest, which takes place in April-June, and some three-quarters of households were without their maize supplies even in a good year like 2000-01. These pre-harvest months are known as the "hungry period" (Levy, 2003). The study results indicated that 85% of the farmers who were free input beneficiaries had increased maize production. The study revealed that the sampled population had mean yield of 704.5 kg per acre. However, it was found that 48.3% of households had maize production above the average. About 38.3% of households reported to have maize production below the mean. Most of these households frequently mentioned land as a problem that attributed to lower maize production. According to Levy (2003) the central and northern region are better off in terms of land problems other than southern region. Levy established that in

2002-03 three-quarters of households in southern region cultivated 2 acres or less against one-third in northern region of the same land holding size. During the study it was found that 46.7% of households interviewed cultivated land size of 1.5 acres or less whilst 53.3% cultivated land of more 1.5 acres. This explains why some households mentioned land as a problem for decreasing agricultural production. The study also found free input distribution to have positively affected the maize production despite some land problems.

TABLE 15: AMOUNT OF INPUTS USED AGAINST OUTPUT

| Amount of input used | | Production | | | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <250kg | | 251-500kg | | 501-750kg | | 751-1000kg | | 1001-1250kg | | >1250kg | | | |
| | | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Fertilizer | ≥ 100kg | 1 | 2.1 | 9 | 18.8 | 4 | 8.3 | 8 | 16.7 | 4 | 8.3 | 15 | 31.7 | 48 | 80 |
| | < 100kg | 1 | 8.3 | 7 | 58.3 | 1 | 8.3 | 0 | 0 | 1 | 8.3 | 1 | 8.3 | 12 | 20 |
| Total | TOTAL | 2 | 3.3 | 16 | 26.7 | 5 | 8.3 | 8 | 13.3 | 5 | 8.3 | 16 | 26.7 | 60 | 100 |
| Maize seed | ≥ 10kg | 1 | 2.4 | 8 | 19.5 | 2 | 4.9 | 6 | 14.6 | 3 | 7.3 | 16 | 39 | 41 | 68.3 |
| | < 10kg | 1 | 5.3 | 8 | 42.1 | 3 | 15.8 | 2 | 10.5 | 2 | 10.5 | 0 | 0 | 19 | 31.7 |
| Total | TOTAL | 2 | 3.3 | 16 | 26.7 | 5 | 8.3 | 8 | 13.3 | 5 | 8.3 | 16 | 26.7 | 60 | 100 |

(Calculations and total numbers include those who did not specify their production quantities, but not included in the table).

Almost everybody (86.7%) had good maize yield. The study also revealed that this 86.7% of the households produced 42270 kg of maize.

Levy (2003) reported that 2001-02 agricultural season maize harvest were under 1.5 million tonnes much lower than 2002-03 where maize production was estimated at 2.5 million tonnes. At national level it was estimated that TIP contributed to a value of 353000 tonnes of total maize produced in 2002-03, which explains that between 87-159 kg additional maize on average was produced at household level. From the results in table 15 above, majority of the respondents (64.5%) who used more than 100kg of fertilizer had maize yield above the average 704.5 kg per acre, whilst of those who used

seeds of more than 10kg, 65.9% had maize yields above average. It can be seen from the table 15 above, that those beneficiaries who used fertilizer and maize of less than 100kg and 10kg 66.6% and 47.4% had maize production below average. This may suggest that the quantities of inputs used had influence on maize production. Those who used less inputs had less production on average than those who used more inputs their maize production was above average. The study found 82.4% and 68.3% of those who benefited free fertilizer and maize seed respectively had maize production above average.

However, other reasons frequently mentioned by the households for increased production were better management practices, greater access to labor and most likely good combination of improved maize seed and fertilizer. It was seen that the majority (88.3%) used improved seed and fertilizer during the 2002-03 season. This could be better explanation of high production in the study areas. It was also found that hunger period was reduced than it was in the past. The respondents reported that food supply has been increased and this has reduced the demand pressure. Thus, poor families are even able to buy food from their fellow households at cheaper prices during the hunger period. This explains that food insecurity problem has reduced in the study areas. Table 16 below shows the months of food deficit in the study areas.

TABLE 16:MONTHS OF MAIZE DEFICIT-SMALLHOLDER FARMERS.

| | 2000-01 (% of farmers) | 2001-02 (% of farmers) | 2002-03 (% of farmers) |
|---|---|---|---|
| 9 months or more | 28.3 | 46.7 | 16.7 |
| 6 months or more | 13.3 | 31.7 | 10 |
| 3 months or more | 53.3 | 21.6 | 48.3 |
| No deficit | 5.1 | 0 | 25 |

This indicates that 2000-01 and 2002-03 were the good production years compared to 2001-02 agricultural season. Food insecurity was less in the two good production years, clearly reducing food insecurity problem.

## 5.0 Conclusion, Recommendations, Limitations

### 5.1 Conclusion

The major objective of this study was to analyze the impact of Donor and NGO free input distribution programmes on maize seed and fertilizer markets and food security in Malawi.

The study has established that free input distribution made inputs to be available to farmers, however the study revealed that programme affected retail traders. The study found that the programme reduced demand of these inputs at various retail channels in the study areas.

The study revealed that traders had problems in input acquisition from their traditional suppliers. The suppliers sold much of inputs to free input distributors and those traders who could not import on their own met a lot of problems in such acquisition of these inputs. The study found free input distribution programme to be detrimental to growth of local entrepreneurs such as agro-dealers in the area.

The results have also shown that free input distribution had positive impact on food production among smallholder farmers in the study areas thereby reduction in food insecurity. It was found that 2002/03 was good production year as well as 2000/01 year other than 2001/02 year. Months of food deficit in the two good production years reduced with a greater percent falling below 6 months.

The study also found the positive impact of credit institution on agricultural production in the study area. The most notable credit institutions found in the areas were MRFC, and Farmers World. Although the situation was like this but farmers who had access to input loan scheme had good maize production.

## 5.2 Recommendations

Several recommendations could be suggested based on results from the study. These have been summarized as follows:

- Government, Donors and NGOs should continue to play role in free input distribution in Malawi's medium term food security strategy. Exit from food security interventions will only be advisable when there is an improvement in rural livelihoods, markets and food sources, and indicators should be designed to track progress towards these goals.
- Most lending institutions do not want to give credit to smallholder farmers mainly because of the high default rates and lack of collateral. As one way of reducing the default rates farmers need to organize themselves into groups or associations, which would make it easier for them to benefit from credit institutions as a result the institution, will be dealing with the group and not individuals.
- Encourage maize seed multiplication programmes particularly OPVs among smallholder farmers. This will not only ensure adequate supply of seed, but also spreading the improved varieties faster because it has the effect of making seed more accessible to farmers at affordable prices.

## 5.3 Limitations

Though it is appreciative that this study has made a contribution towards understanding NGO and Donor activities on input markets and food security, the following factors believed to have effect on the study results.

1. More traders were reluctant to give out their information. Most field officials feared their head office officials upon finding them revealing the company's secrecy.
2. Most Donors fund free input distribution to government for such programmes as TIP therefore, they could not be directly interviewed

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**Appendix 1: Questionnaire for Farmers.**

**The Impact of Donor and NGO Activities on Maize Seed and Fertilizer Markets and Food Security in Malawi.**

**Smallholder Farmer Household Questionnaire.**

Enumerator: ---------- Date: ----------

ADD: ---------- RDP: ----------

EPA: ---------- Village: ----------

Name of the respondent: ---------- Name of the household head:

1. What crops do you grow and main reason for growing?

| Crop | Area grown | Food | Cash | Cash/food |
|---|---|---|---|---|
| Maize | | | | |
| Sweet potato | | | | |
| Cassava | | | | |
| Irish potato | | | | |
| Tobacco | | | | |
| Sorghum | | | | |
| Bambara nuts (nzama) | | | | |
| Ground nuts | | | | |
| Soy bean | | | | |
| Others (specify) | | | | |

2. What has been main source of fertilizer and seed for these crops?

| Crop | 1999/00 | 2000/01 | 2001/02 | 2002/03 |
|---|---|---|---|---|
| Maize | | | | |
| Sweet potato | | | | |
| Cassava | | | | |
| Irish potato | | | | |
| Tobacco | | | | |
| Sorghum | | | | |
| Bambara nuts (nzama) | | | | |
| Ground nuts | | | | |
| Soy bean | | | | |
| Fertilizer | | | | |

***Codes:*** *1= farm saved; 2=bought with own cash; 3=obtained through a loan scheme; 4=worked for seed; 5 free seed program; 6=given free by relative; 7= others---------- (specify).*

3. If received free from a seed program, which one?

   Starter Pack [ ] 1
   TIP [ ] 2
   NGO [ ] 3
   Others (specify)---------- [ ] 4

4. If obtained through a loan scheme, which one?

   Community seed multiplication scheme [ ] 1
   APIP [ ] 2
   Farmers [ ] 3

Others (specify)---------- [ ] 4

5 For your maize crop what of seed did you grow (2002/03)?

Local varieties [ ]1

Hybrids [ ]2

OPVs [ ]3

Both hybrids and OPVs [ ]4

6 Where did you obtain the maize seed and fertilizer you planted last season (2002/03)?

| Variety | Acreage | Source | Quantity | Price/ unit |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Fertilizer | | | | |

Codes: source of seed.

1=from last years harvest;

2=ADMARC depots

3=purchased from seed retailers

4=purchased from another farmer

5=gift from another farmer

6=TIP

7=free seed from NGO

8=others specify

7. Are you observing an increase in the yield since you started receiving free seed?

Yes [ ] 1

No [ ] 2

8. Months of food shortage?

| | 2000-01 | 2001-02 | 2002-03 |
|---|---|---|---|
| 9 months | | | |

| | | | |
|---|---|---|---|
| 6 months | | | |
| 3 months | | | |
| No deficit | | | |

9.If yes can you quantify the increase?

| Crop | Quantity |
|---|---|
| Maize | |
| Sweet potato | |
| Cassava | |
| Irish potato | |
| Sorghum | |
| Bambara nuts (nzama) | |
| Ground nuts | |
| Soy bean | |
| Others (specify) | |

10. Do you understand the objectives of the seed programmes that government or NGOs adopt in the area?

Yes [ ] 1

No [ ] 2

11. If yes, what are the objectives? ----------

12. Which type of seed intervention do you prefer and why?

1 = Free seed handouts, why? ----------

2= community seed multiplication, why? ----------

3= input credit (cash), why? ----------

4= others (specify), why? ----------

13. What intervention would you prefer to ensure sustainable seed and food security?

---

14. Have the free seed distribution programme changed the way you source seed and fertilizer? Yes [ ]1

No [ ]2

15. If yes, in what way? 1= stopped/ reduced buying seed (wait for free seed)

2= buy more seed of new varieties

3= more seed secure

4= others specify----------

16. What are your general comments about the impact of seed programmes in the area?

---

**Appendix 2: Questionnaire for Traders.**

**Traders Information**

1. What is the classification of your business?
    a. Sole trader
    b. Partnership
    c. 0others specify----------
2. For how long have been in business?
    1.Less than 5 years
    2.5-10 years
    3.More than 10 years.
3. what agricultural trading activities are you involved in?
    1.sell of agricultural inputs
    2.purchasing and resale of outputs
    3.both selling of inputs and purchase of outputs.
4. What inputs do you sell?
    1. Fertilizers
    2. Seeds
    3. Chemicals
    4. Others specify ----------
5. What is their current selling price?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
    4. Others specify ----------
6. What is your current purchase price?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------

4. Others specify ----------

7. How much did you purchase last year?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
    4. Others specify ----------

8. How much have you purchased this year?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
    4. Others specify ----------

9. How much did you sell last year?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
    4. Others specify ----------

10. How much have you sold this year?

    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
    4. Others specify ----------

11. What changes have you experienced in selling the inputs?

    ---

12. For the first five years, what has been the experience in sales of these inputs?

    ---

13. What reasons for the changes in the volume of sales?

---

14. Where do you source these inputs?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
15. What has been the experience in purchase of these inputs in terms of their availability, prices, accessibility and competition with others?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------
16. Explain what has caused the changes in availability, prices and accessibility of the inputs?

    ---

17 Compare the availability of these inputs after Free Input Distribution started from the sources?
    1. Fertilizers----------
    2. Seeds----------
    3. Chemicals----------

18 How has the Free Input Distribution affected agricultural marketing?

    ---

19 Compare the number of traders in your market between the times when Free Input distribution started and now?

    ---

20 What do you think, about the impact of Free Input Distribution in this area?

    ---