

**STRENGTHENING AND REPLICATING SUCCESSES OF THE SMALLHOLDER  
SEED MULTIPLICATION INDUSTRY IN MALAWI: CASE STUDY OF ASSMAG AND  
ICRISAT SMALLHOLDER SEED MULTIPLICATION MODELS**

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# 1 Introduction

## 1.1 Agriculture and the Malawi economy

Malawi, with a gross domestic product (GDP) of US\$4.2 billion, per capita GDP of US\$328 (IMF 2009) and a narrow resource base, is one of the poorest countries in Sub-Saharan Africa (SSA). Agriculture contributes 34% to the GDP and the sector accounts for over 80% of Malawi's export revenue (IMF 2009). Poverty in Malawi is especially prevalent in rural areas where an estimated 85% of Malawi's 13.1 million people live. Their predominant involvement in agriculture (85% of their livelihood) and rural well-being is closely linked to agricultural performance. Rural poverty in Malawi is at 42% compared to national average headcount poverty at 39% by 2009 down from 52% in 2004. It means therefore that supporting agricultural productivity is the most reliable way to achieve food security and reduce poverty levels in Malawi. However, Malawi has a narrow export base with heavy reliance on tobacco exports, a crop with less than buoyant demand prospects in future due to heavy anti-smoking campaigns and recent drive by the World Health Organization to ban burley tobacco<sup>3</sup>. Tobacco is particularly critical to Malawi's economy and has been one of the factors behind recent high growth rates and poverty reduction. It represents 60% of exports (mostly burley—80% of tobacco exports) and half the Government's tax base.

The country should therefore be seriously considering promotion of other high valued crops/enterprises it has a comparative advantage in their production such as groundnuts, pulses, sugar cane, macadamia nuts, cassava and chillies (Nakhumwa 2005). Domestic, regional and international demand prospects for groundnuts and other

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<sup>3</sup> The proposed new WHO guidelines for the FCTC, adopted in Uruguay on 15-20 November 2010, recommend banning the use of added ingredients in tobacco products, on the basis that they make cigarettes more attractive so encourage smoking. A ban would in practice eliminate blended cigarettes, which account for half of global cigarette consumption, and drastically reduce the demand for burley and oriental tobacco used to make these products. Malawi is currently the largest producer of burley tobacco in the world. If these WHO guidelines are adopted, some 5 of world's poorest countries could face huge economic and social crises

high valued legumes are quite strong. Legumes have in the past contributed significantly to foreign exchange earnings, particularly groundnut exports which ranked second to tobacco as a foreign exchange earner for Malawi in the mid 1980s before the country lost its world market share due to high incidences of aflatoxin. Legumes are adaptable to a wide range of agro-ecological zones in Malawi and do not demand a lot of inputs. As such, legumes are affordable and easily grown by the majority of smallholder farmers in Malawi, especially the poor resource women. However, in order to rehabilitate and revamp this once vibrant industry it is important to understand and tackle factors that limit production and marketing of legumes in the country. Poor quality and inadequate availability of quality seed remain some of the major hindrances to increased yield and production of legumes in Malawi.

Investments in production of legume seed are low and compounded by reluctance of multinational seed producing companies to engage in this sector. Smallholder seed multipliers are less organised and lack capital and credit. Poor regulatory framework is also mentioned as contributory to the low seed production and marketing. As part of the ESFIM initiative, implemented by Agrinatura-EEIG in collaboration with Farmer Organisations' (FOs) national focal-points, National Association for Smallholder Farmers of Malawi (NASFAM) and Farmers Union of Malawi (FUM), a case study on the Association Smallholder Seed Multiplication Action Group (ASSMAG) and ICRISAT/FOs models was therefore undertaken by local consultants to understand the limitations and opportunities that exist in the seed industry, especially for smallholder farmers. The findings and recommendations from this paper and extracted briefs will be used by NASFAM and FUM for advocacy and lobbying Government. This will help Government in formulating informed policies regarding legume seed production and promoting marketing of legume seed, particularly for smallholder farmers in Malawi.

## 1.2 Approach for the study

This study is based on desk research complemented by key informant interviews with relevant smallholder farmer organisation (NASFAM, FUM, ASSMAG), NGOs involved in various seed multiplication programmes (see Appendix 1). Key informant interviews were also conducted with public research station (Chitedze), GoM, ICRISAT and Seed Traders Association of Malawi (STAM). Donor partners participating in the Farm Input Subsidy Programme (FISP) were also interviewed.

## 1.3 Expected outputs

The following were expected outputs:

- Identify factors that hinder production and marketing potential for smallholder seed multiplication (legumes) in Malawi;
- Based on evidence gathered suggest what would make a successful seed multiplication model for smallholder farmers in Malawi;
- What regulatory measures should be considered to protect and promote smallholder seed multiplication in the country;
- Identify other priority areas for policy advocacy and lobbying with Government, aimed at promoting and protecting ethics of the smallholder seed multiplication industry in Malawi.

## **2 Institutional context of seed multiplication**

### **2.1 Seed Certification and Quality Control**

High quality seed is an important input in order to achieve increased agricultural productivity and food security. Seed certification and quality control is very important for a sustainable seed industry and contributes to seed security of all crops. Seed certification and quality control is designed to secure, maintain and make available high quality seed and propagating materials to the farming community for increased crop production. The genetic identity and varietal purity of improved varieties of various crops is ensured by enforcing seed certification and quality control standards. This also provides measures to ensure that existing as well as new cultivars are maintained.

#### **2.1.1 Seed Certification and Quality Control Unit**

The Seed Certification and Quality Control Unit (SCQCU) is the official seed certification office in the Ministry of Agriculture under the Department of Agricultural Research Services (DARS). The Unit operating under the Seed Act of 1988 amended in 1996 is mandated to ensure that high quality seed/propagating plant materials of improved varieties of crops are produced and made available to farming community. The activities of SCQCU are coordinated at Chitedze research Station where the main seed testing laboratory is located. There are satellite laboratories at Lunyangwa in Mzuzu, Lifuwu in Salima and Bvumbwe in Thyolo. The main seed testing laboratory at Chitedze Research Station is accredited to the International Seed Testing Association (ISTA) and therefore issues Orange International seed analysis Certificates to facilitate international seed trade.

Seed of all types of crops produced in the country are certified by the Unit. This is achieved through a number of activities which together with seed regulation assist in the production of high quality seed and propagating materials.

### **2.2 Seed policies**

#### **2.2.1 The National Seed Policy of the Republic of Malawi, 1993**

Seed production, distribution and use are guided by the government policy on seeds. The Government of Malawi recognizes the fundamental importance of a sustainable seed industry in contributing to increased agricultural production and diversification. Therefore variety development and seed certification and quality control are key to



improved agricultural productivity.

### 2.2.2 The Seed Act, 1988 and amendment 1996

The country passed its seed law in 1988. It is commonly referred to as Seed Act, 1988. It was amended in 1996. The law provides the minimum standards to regulate and control production, processing, sale, importation, exportation and testing and further provides for the certification of seed. In the laws of Malawi “Seed” is defined as the part of any plant, customarily referred to as seed, intended for planting and includes other propagating materials.

## 3.0 SEED SECTOR IN MALAWI

3.1 Malawi recognizes two main seed sectors and these include the formal and informal seed sectors.

### 3.1.1 The Formal Seed Sector

In the formal seed sector, seed provision covers seed production and supply mechanisms that are governed by defined methodologies, combined stages of multiplication and quality control. Stakeholders in this sector mostly invest in research and development of new varieties, registration of varieties, seed production, processing, marketing and distribution. Seed production follows all the necessary procedures of seed certification where farmers are registered and fields are inspected for certified seed production. The formal seed sector is dominated by the (i) public sector which consist of the Ministry of Agriculture and Food Security (MoAFS), International Agriculture Research Centres (IARCs) and the University of Malawi; (ii) the private sector – multinational and local seed companies, (iii) the civil society organizations or Non Governmental Organizations, (iv) farmer associations and medium to large scale farmers.

#### 3.1.1.1 Strengths in the formal seed sector

- Well established policies and regulations for variety development and seed production and quality control, which allows ease of participation in the seed industry.
- Enhanced public-private partnerships in all the components of the seed value chain.
- Well established seed distribution networks especially through agro-dealers and ADMARC markets

#### 3.1.1.2 Factors limiting potential of the formal seed sector

- Inadequate trained personnel in plant breeding and seed certification
- Inadequate funding for research, variety development and demonstrations/promotions in the public sector
- Poor seed handling by seed distributors
- Shortage of foundation seed for certified seed production especially legumes
- Lack of processing equipment in most local companies and farmer associations.

- Inadequate availability of credit and reluctance of multilateral organization to invest in seed production, particularly for legumes. Legumes are self pollinating and can therefore be easily recycled by smallholder farmers. Most big potential investors in the legume seed industry doubt the value for money for their investments.

### 3.2.2 The informal seed sector

The informal seed sector in Malawi comprises of a larger percentage of the farming community than the formal seed sector. This includes smallholder farmers who make up more than 70% of the farming community. They develop and maintain their own varieties based on local preferences and means of seed production, selection and exchange. Farmers do not see dependable and competitive supplies of commercial seed especially for some legumes and neglected crops including local varieties of maize. There is no formal quality control in the sector. Seed is sourced from exchange either in kind or cash and is recycled. Crop production is mainly for subsistence.

#### 3.2.1 Strengths of the informal seed sector

- There is a cheap source of seed or planting material
- Availability of resistant crops to pests and diseases
- Promoted varieties are normally adaptable to local conditions
- Varieties promoted are usually easy to store.

#### 3.2.2 Factors limiting the informal seed sector

- Despite other favourable attributes, the varieties are usually low yielding and therefore negatively affect food security
- Inadequate knowledge of seed production/crop management

## **4.0 VARIETY RELEASE SYSTEM AND SEED MULTIPLICATION IN MALAWI**

### **4.1 Variety Release System**

Previously, Malawi had the Variety Release Committee that looked at Release of new varieties of crops. However in 1993, an Agricultural Technology Clearing Committee (ATCC) was instituted to take overall functions and responsibilities that were vested in the Variety Release Committee (VRC). The ATCC extended its functions and responsibilities to include all other agricultural sector including livestock, soil fertility, farm machinery, plant protection among many others. The ATCC is a committee in the Ministry of Agriculture and Food Security mandated to recommend to the Ministry all agricultural technologies that should be used by the farming community in Malawi. In Malawi testing of agricultural technologies including varieties is a responsibility of the Department of Agricultural Research Services, semi-autonomous research stations such as the Tobacco and tea research institutes, University of Malawi and Private seed companies. Private Seed companies however, are supposed to work in collaboration with scientists from the Department of Agricultural Services in the Ministry of Agriculture and Food Security.

For a technology to be released it must use conventional research methodology with sufficient on-station and on-farm testing. This involves participatory methodologies to ensure farmer involvement at an early stage of technology development. The technologies released should follow experiments/and trials with sufficient repeatability and replication and have significant results. In addition for a technology (Variety) to be released it has to show potential for improvement of agricultural productivity arising from its use. It must show potential for contribution to the socio-economic development of the country and must be innovative. Finally there must be demand for the technology from end-users. The ATCC addresses issues of agro-ecological adaptation by ensuring that testing is conducted across the different agro-ecological zones while ensuring farmer participation. Enough information/data on distinctiveness, uniformity and stability (DUS) of the variety, and value for cultivation and use (VCU) should be collected and presented during release (Appendix 2).

Crop varieties that are released are allowed to go into further seed multiplication in Malawi. The seed of the new variety, when released, is multiplied progressively in several stages where each stage is assigned a class.

## 4.2.1 Classes of seed

Three classes of seed of all crop varieties are recognized in Malawi and these have different requirements that meet international standards for certification.

### 4.2.1.1 Breeders Seed

This is seed of a particular generation of an in bred line or variety which is produced under the supervision of the breeder or institution that developed the variety. It is the source for the production of basic/foundation seed.

### 4.2.1.2 Basic/foundation seed

This is the progeny of breeder seed. It is handled in such a way that its genetic identity and purity is maintained to ensure quality.

### 4.2.1.3 Certified seed

Certified seed is the progeny of basic seed. Production of certified seed should also conform to prescribed standards to maintain genetic identity and purity.

## 4.2.2 Seed certification procedure

Seed certification procedure is divided into field inspections and laboratory seed testing (analysis).

### 4.2.2.1 Requirements for field inspections

Field inspections are conducted to ensure that standards are met and adhered to in the field in order to achieve high quality seed production. Field inspections are also conducted to ensure both physical and genetic purity of seed. The requirements include;

**Registration/Application** – Seed grower registration is the first activity that the farmer is required to do. This is done before the end of December of each year for rain fed seed production and a month before planting for winter seed production. Registration helps Seed Services Unit to update seed data, easily locate the field or seed by

inspection team, and easily direct buyers to where the required seed is located. It is also important for the country to know seed quantities available to avoid emergency importance. Any field that is not registered is not inspected.

**Land verification** – Land verification checks the history of the field to be grown to seed. It ensures that same crops do not follow each other consecutively to avoid contaminations and prevalence of pests and diseases.

**Seed source** – Seed should be procured from reliable sources such as from breeders and programmes in different institutions, or from other farmers who conform to set standards. Information for seed source is required during registration.

**Isolation** - Seed crop field must be isolated (separated) from any other variety of the same crop to avoid cross or physical contaminations. Different crops have different isolation distances depending on their mode of pollination.

**Field standard** – Poor stands, lack of vigour or uniformity, weedy growth, pest and disease infestation or conditions which may hinder accurate inspections are cause for rejection.

#### 4.2.2.2 Laboratory seed analysis

**i. Seed sampling:** The objective of seed sampling is to obtain a sample of a size suitable for tests in which the probability of a constituent being present is determined only by its level of occurrence in the seed lot. All seed to be sampled should be processed and packed in recommended seed lot sizes so that samples and consequently results produced from such lots are as representative as possible. ISTA rules on seed sampling are applied such that the sampler has the right to reject any seed lot that does not conform to standards

**ii Seed testing:** Seed testing is also done in accordance with ISTA rules and national developed standards. All seed must be treated with the recommended seed dressing and packed in clean containers prior to sampling for analysis. After seed testing, seed analysis certificate is issued to the seed producer for marketing the seed.

#### 4.2.2.3 Labelling

Seed when offered for sale or put on the market should have an official label indicating results of the analysis (Table 1) Any seed that is not properly labeled should not be sold. The label should include the following;

- (a) The name and address of the supplier.

- (b) The kind and variety of seed
- (c) The class of seed.
- (d) Date of testing
- (e) The percentage germination of the seed -Optional
- (f) The lot number

#### 4.2.2.4 Training

The Seed Services Unit provides training on seed certification and quality control to all seed producers in Malawi. This is done to ensure that farmers are aware of the requirements for seed production which if implemented will result in production of high quality seed and reduce rejections.

#### 4.2.2.5 Seed Monitoring

In order to ensure that farmers do not access sub-standard seed, seed monitoring in seed markets and warehouses is very crucial. The seed is re-sampled and re-tested to verify its quality before sales. Any seed that does not meet the minimum standards cannot be sold.

**Table 1.0: Standards for seed certification in Malawi for selected crops**

	Laboratory standards					Field Standards					
	Min. Germination (%)		% Pure seed (Min)		% Moisture Content (Max)	Min No of inspection		Min. Isolation distance (m)		Max. Off-types (%) based on 1000 plants	
Common name	BS	CS	BS	CS	All classes	BS	CS	BS	CS	BS	CS
Groundnuts	75	80	98.0	98.0	10.0	4	4	10	5	0.1	0.1
Pigeon peas	75	80	98.0	98.0	13.0	4	4	400	200	0.1	0.1
Soya beans	75	75	99.0	99.0	13.0	4	4	10	5	0.1	0.1
Rice	80	80	98.0	98.0	13.0	4	4	25	5	0.1	0.1
Beans	75	75	99.0	99.0	13.0	4	4	10	5	0.1	0.1
Maize (OPV)	90	90	99.0	99.0	12.5	5	5	400	200	0.2	0.2

BS = basic / foundation seed; CS = certified seed



#### 4.3 Stakeholders working with the Seed Services Unit and their role

The Unit works with various stakeholders ranging from multinational seed companies to individual seed growers (Table 2). All stakeholders are involved in seed multiplication and/or seed distribution throughout the country. In Malawi the law does not allow stakeholders to certify seed but encourages them to have their own internal quality control mechanisms. Seed certification and quality control Unit is the only office mandated to certify seed in Malawi. However, with the growing seed industry and regional initiatives on harmonized seed policies and regulations, there may be need to review the seed law so that some of the duties are performed by stakeholders who may have structures in place and Seed Services Unit would just monitor them.

**Table: 2 Stakeholders working with the Seed Services Unit**

<b>Public Seed Sector</b>	<b>Commercial /Private Seed Sector</b>	<b>Civil Society Organizations (NGOs)</b>
DARS	Pannar Seed Ltd	Self Help Africa
Bunda College of Agriculture	Monsanto	Concern Universal
CIAT	Seed Co	Catholic Development Commission in Malawi
ICRISAT	Demeter Agriculture limited	Evangelical Lutheran Development Programme
IITA	Seed Tech	Church of Central Africa Presbyterian (Blantyre, Livingstonia)
ARET	Funwe Farms	Action Aid
Tea Research Foundation	Pioneer	Africare
	Association of Smallholder Seed Multiplication Action Group (ASSMAG)	Oxfam
	Peacock MASA seed	Plan International
	Panthochi Farm	World Vision International
	National Smallholder Farmers Association of Malawi (NASFAM)	Adventist for Development and Relief Agency
		CARE International
		Interaid
		Concern World wide

#### 4.4 Problems/Challenges faced by the Seed Services Unit and weaknesses among seed producers

- Scattered fields of less than 1 ha are a major challenge faced by SSU. This makes field inspection expensive and time consuming.
- Inadequate transport also limits the SSU ability to perform efficiently in the certification of seed and ensure quality control. Seed certification involves a lot of travelling to conduct field inspections, seed sampling and seed monitoring for quality control and therefore reliable transport is required.
- There is serious lack of internal quality control mechanisms. Most NGOs and farmers association (FOs) do not have internal quality control mechanisms in place and as such it has been difficult to maintain quality of seed produced. With the SADC seed harmonization process, there are provisions for licensing seed companies to conduct some of the seed certification and quality control activities but this cannot be done because of the lack of internal quality control mechanisms.
- There is limited understanding amongst stakeholders on the importance of adhering to standards in seed production seed multiplication business. Seed producers may be trained but it is difficult in most cases to implement the techniques. Some producers do not yet appreciate the importance of seed certification and quality control and therefore quite reluctant to incur cost of seed certification.
- Some seed producers are not transparent enough and therefore cheat on quality of seed.
- Inadequate enforcement of the seed act coupled by quite lenient penalties on offences committed in the seed industry. Usually the penalties are too lenient and therefore cannot act as deterrent or change people's mindset. This calls for the revision of the seed act so that stiff penalties should be imposed on stakeholders who commit an offence.

## **5.0 SEED PROGRAMMES CONDUCTED BY ASSMAG AND ICRISAT IN MALAWI**

### 5.1 Association of Seed Multiplication Action Group (ASSMAG)

#### 5.1.1 Brief history of ASSMAG

Association of Smallholder Seed Multiplication Action Group (ASSMAG) was established in 2001 by the Government of Malawi as an association for smallholder farmers in response to shortage of seed especially legumes and OPV maize which was required for the Targeted Input Programme (TIP) in Malawi. Prior to this period, there was no seed company multiplying legumes and OPV maize, which resulted in shortage of seed for such crops. ASSMAG is involved in seed multiplication and distribution of OPV maize, groundnuts, cowpea, soya beans, beans, cassava and sweet potato.

#### 5.1.2 Organization and management of ASSMAG

ASSMAG has its head office in Lilongwe that coordinates all the activities of the association. There is a main coordinating committee comprising of a Chairman, Finance Manager, the Production Manager and the Marketing Manager. ASSMAG also has a board that govern the activities of the association. The association has smallholder farmers throughout the country organised in Seed Marketing Action Groups (SMAGs). There are 52 SMAGS scattered throughout the country and each with membership of 50 seed producers. Each SMAG has a committee that controls its activities comprising of a chairman, secretary and treasurer. While membership is voluntary, to be accepted as a member one has to demonstrate reasonable ability to be able to multiply seed. This means potential member must have land, be a practicing smallholder farmer and willing to contribute towards the association. Previously ASSMAG had a total of 2600 members scattered throughout the country but this number has significantly dropped. Both the number and average size of SMAGs have greatly reduced over time. Average size of SMAG has reduced to 20 farmers from previous 50.

#### 5.1.3 Class of seed multiplied by ASSMAG and Seed source

Initially ASSMAG was established in order to multiply certified seed of crops that were not multiplied by seed companies and therefore there was shortage of such seed in the country. However with the growing seed industry it was found that most seed companies as well as new companies that emerged in the seed sector got involved in seed multiplication of the same crops and therefore this resulted into shortage of foundation seed. It was for this reason that later, ASSMAG also started multiplying

foundation seed. Foundation seed is multiplied by selected farmers within the SMAG who have the capacity to multiply such a high class seed. DARS and ICRISAT that provided foundation seed of the crops multiplied.

#### 5.1.4 Training in Seed multiplication

All farmers multiplying seed in ASSMAG are trained in seed multiplication for high quality seed production by the Seed Services Unit. However recently due to the association's involvement in hybrid maize production breeders have also been involved in providing some form of training/supervision in collaboration with the SSU. Breeders mainly provide technical advice on bulking of parental lines for hybrid seed production while the SSU provides training in seed certification and quality control. Seed marketing is left to the association itself. Training in seed certification is provided every year and this is especially for the benefit of new members.

#### 5.1.5 Seed production by ASSMAG

In early 2000, ASSMAG used to be a very active farmers association. This is also demonstrated by good seed volumes produced in the early years of its establishment but this potential has not been maximized due to some reported mismanagement (Table 3). A lot of ASSMAG members lost trust in the association because the association failed to pay some members their money after sales of seed. It was common practice for the ASSMAG secretariat to assemble and sell seed on behalf of member SMAGs and thereafter payout the revenue to its members. It is alleged that some members were not paid their money and therefore lost trust in the organization. Others reported lack of market for their seed produced as reason for dropping out. Lack of steady markets for seed forced a lot of farmers to just sell their seed as grain. Active seed production by the association has now been mostly restricted to members that are running the secretariat.

#### 5.1.6 Seed Certification and quality control

Seed certification and quality control of seed produced by the association is done by SSU. All farmers multiplying seed from all associations are registered with the SSU. Seed fields are inspected and sampling conducted for laboratory seed testing. Seed that does not conform to standards both in the field and laboratory is rejected and is not supposed to be sold as seed. The SSU also monitors seed in all selling points to ensure availability of high quality seed. As already alluded to, ASSMAG does not have internal quality control mechanism in place and it is very difficult to maintain high quality of the seed produced.

**Table 3: Average seed production statistics by ASSMAG from 2007/2008, 2008/2009 and 2009/2010 growing seasons.**

Crop	2007/2008					2008/2009					2009/2010				
	Ha		Avg yield (Mt/ha)	Prod. Qty (Mt)		Ha		Avg yield (Mt/ha)	Prod. Qty (Mt)		Ha		Avg yield (Mt/ha)	Prod. Qty (Mt)	
	BS	CS	All classes	BS	CS	BS	CS	All classes	BS	CS	BS	CS	All classes	BS	CS
Groundnuts	0	524.8	0.8	0	419.8	7.4	1.0	0.8	5.9	0.8	9.0	8.7	0.8	7.2	7.0
Soya beans	0	1.3	0.8	0	1.0	3.0	11.0	0.8	2.4	8.8	33.2	3.2	0.8	26.6	2.6
Beans	0	8.0	0.8	0	6.4	0	5.0	0.8	0	4.0	14.0	0	0.5	7.0	0
Maize OPVs	0	512.4	2.0	0	1024.4	9.0	58.3	2.0	18.0	116.6	0	45.0	2.0	0	90
<b>Total</b>	<b>0</b>	<b>1046.5</b>		<b>0</b>	<b>1451.6</b>	<b>19.4</b>	<b>75.3</b>		<b>26.3</b>	<b>130.2</b>	<b>56.2</b>	<b>56.9</b>		<b>45.0</b>	<b>99.6</b>

Note: BS is basic/foundation seed and CS is certified seed

### 5.1.7 Seed production cost structure

For farmers to make profits in their seed production proper crop management should always be emphasized. In order to have seed certified strict crop management regime must be followed and the farmer must be prepared to invest in production of seed. Table 4 below highlight some of the average costs incurred for some of the crucial activities. Most of the ASSMAG farmers do not use herbicides<sup>4</sup>.

**Table 4. Current Seed production cost by crop**

Seed crop	Seed Cost (Mk/kg)	Land prep cost (Mk/ha)	Planting cost (Mk/ha)	Weeding cost (Mk/ha)	Harvesting cost (Mk/ha)	Certification cost (Mk/ha)	Grading and storage cost (Mk/ton)
Ground nuts	250	3500	3000	2500	6000	3500	5000
Beans	250	3500	3000	2500	5500	3500	2500
Soya beans	250	3500	3000	2500	5500	3500	3500
Maize OPV	250	3500	3000	2500	5800	4000	4000

### 5.1.8 Extension and Supervision during seed production

Farmers who produce seed under ASSMAG access extension services provided by Ministry of Agriculture and Food Security (MoAFS) extension frontline staff. They provide excellent extension services throughout the growing season. The only challenge is that some farmers do not implement knowledge gained and this results in rejection of their field during inspection by SSU. Rejection is mostly due to poor crop management that results in poor crop stand if not total failure. In order to prevent future rejection, farmers are encouraged to manage their fields and those who do not take up the advice are replaced with other farmers who are able to follow procedures. Seed crops have also been rejected due to higher levels of off-types, inadequate isolation distances between a seed crop field and a commercial crop field. Verifying land before or soon after planting has really assisted in reducing field rejections in ASSMAG. On average, over 10% of fields registered by ASSMAG are rejected.

### 5.1.9 Post harvest handling of seed by ASSMAG

ASSMAG has a very big post harvest problem especially for maize because of lack of storage facilities. This has resulted into the association losing much of its seed due to high pest infestation and loss of viability. For instance in 2008/2009 growing season, ASSMAG lost about 23.1% of certified seed maize due to weevils and loss of viability. Since there is no capacity for assessing aflatoxin contamination in the produce, the organization has never thought of aflatoxin contamination as a problem. Because of lack of storage facilities, ASSMAG has allowed its farmers to keep seed on their own and with no storage facilities, most farmers have lost much of the seed to pests and loss of viability. Although these farmers have been trained on seed storage, most of them have not been able to implement knowledge obtained from the training due to lack of facilities.

### 5.1.10 Challenges faced in certifying seed

- Payment of inspection fees to SSU. This is the biggest challenge encountered for ASSMAG seed to be certified. Most smallholder farmers cannot afford to pay seed certification fees such that their seed may not be certified. However, organization of farmers into association and registering them as an association assist in addressing the challenge than registering as individual farmers. The charge if done per association is affordable than on individual basis.
- Delays in field seed inspection by SSU. Some farmers are visited later in the season due to delays in commencing field inspections by SSU. This is because of inadequate transport and staff by SSU. However this has improved especially during the 2010/2011 growing season as new vehicles have been procured and additional staff employed by MoAFS.

### 5.1.11 Factors that have limited seed production and marketing in ASSMAG

These factors are also challenges that the association faces and needs to be addressed for high quality seed production

- Lack of internal quality control mechanisms. In every seed programme internal quality control mechanism is a requirement to ensure quality seed at all times. In view of this, well qualified and trained personnel on seed issues are required. ASSMAG has no internal quality control system in place and this has compromised quality of the seed produced by the association. If the association was well coordinated, there was need to recruit an extension officer who could be

- trained in seed technology for internal quality control.
- Lack of transparency in the whole seed value chain. ASSMAG has not been transparent enough in its seed programmes. This has also compromised quality of seed produced by the association and has negatively affected its programmes. Sometimes members have cheated by mixing certified seed with grain in order to increase quantity.
  - Inadequate quantities of foundation seed. Involvement of medium scale farmers to multiply basic seed for the rest of the farmers would assist in solving this challenge of inadequate quantities of foundation seed. It can also be the role of the coordinating Unit to multiply foundation seed for their farmers instead of relying on the public sector for all the required quantity of foundation seed.
  - Apart from the subsidy programme, market for legume seed in particular has been scarce. Members have sometimes been forced to sell seed as grain, usually at lower price.
  - Lack of storage facilities and processing equipment has affected marketing of seed in ASSMAG. The association has not been able to directly participate in the subsidy programme because of lack of processing and good storage facilities.
  - Inadequate finances/access to credit to support recommended seed production, certification activities and supervision of its members.
  - ASSMAG depends mostly on fees collected from its members to finance its activities. However due to the reduction in membership the association has not been able to collect enough resources to finance its activities including seed certification.
  - Involvement of the members of staff at the ASSMAG secretariat in production and marketing of own seed has created a conflict of interest. This has resulted in poor coordination of ASSMAG activities.
  - Lack of internal quality control has contributed to compromised quality of seed. ASSMAG does not even have capacity to supervise its members to ensure recommended practices are adhered to along the value chain, from production to marketing.

## 5.2 Seed Programmes by ICRISAT

### 5.2.1 Brief history

ICRISAT is one of the International Agriculture Research Centres and a member of the CGIAR. It was established in Malawi in 1998 with the aim of augmenting National Agricultural Research Systems (NARS) efforts by conducting research in its mandatory areas. ICRISAT is mainly involved in variety development and breeder/foundation seed multiplication of groundnuts, pigeon peas and of late rice and bean foundation/certified seed. Variety development is done in collaboration with NARS. For groundnut and pigeon peas, ICRISAT uses its own germplasm/varieties but in case of beans and rice,



the organization access germplasm from DARS for multiplication.

### 5.2.2 Organization and management of ICRISAT

ICRISAT is based in Lilongwe at Chitedze Research Station. It has a country representative who heads the institution, breeders, pathologists, economists, scientific officer and technicians. The organization also implements various donor funded projects and therefore employs staff based on projects being implemented. Of importance to note is the seed technician that ICRISAT has in place. The seed technician is a retired government technician who is very conversant with seed issue. He has been working on seed for quite a long time and this has enabled ICRISAT to have a strong internal quality control system

### 5.2.3 Seed production programmes by ICRISAT

As already alluded to, ICRISAT was originally involved in foundation seed production alone which was supposed to be accessed by farmers for further multiplication. However it was found that basic seed production alone could not suffice. Instead of multiplying the seed further, the seed was used for production of grain. It was for this reason that ICRISAT decided to start certified seed production as well that could be accessed by farmers for commercial production. It was for that reason that in 1998 ICRISAT secured funding from USAID and started a revolving fund facility. The facility has been there for a long time until now and has actually expanded.

Seed production at ICRISAT is done in different modes. There are contract growers who multiply foundation seed, while farmers associations multiply certified seed. ICRISAT operates a revolving fund facility and also, implements various seed production projects. Worth noting are the Malawi Seed Industry Development (MSID) project and the Tropical Legumes II (TL II) project. All these projects are to improve farmers' access to improved seed for increased production.

#### 5.2.3.1 Seed multiplication by contract growers

Seed multiplication by contract growers started in early 2000. The organization has two big estate seed producers, one for pigeon pea foundation seed multiplication and the other one for groundnut foundation seed multiplication. These were selected because they have irrigation facility so much so that in case of drought, seed production can still be completed without significantly affecting yield. The rest of the growers are small to medium scale with a minimum land holding size of 5ha. These farmers also multiply foundation seed. With the subsidy programme implemented by the Government of Malawi, ICRISAT seed production programme has also expanded. ICRISAT is the main supplier of groundnut and pigeon peas foundation seed. The organization supplies foundation seed to almost all stakeholders who are involved in seed programs

#### 5.2.3.2 Seed Production by farmers association

Seed production by farmers associations is mostly done in collaboration with other organization such as NASFAM and NGOs through the various projects. During the 2009/2010 season, ICRISAT in collaboration with other stakeholders worked with about 7 associations each comprising of about 200 farmers. Farmer associations are not involved in foundation seed production because of their limited capacity in terms of technical know-how and also land holding sizes. Seed production by farmers associations has also greatly increased over the past few years because of the subsidy programme. ICRISAT has been the main supplier of certified seed to the programme through various seed companies.

#### 5.2.4 Seed Certification and Quality Control

ICRISAT register all its growers and seed programmes with the Seed Services Unit right from breeders' seed to certified seed production. The Seed Services Unit certifies all seed produced by ICRISAT. SSU provides training to all seed growers in seed multiplication, handling and storage and monitors all the processes conducted by ICRISAT. Training is provided once a growing season. However, the organization has a very strong internal seed quality control mechanism in place. It is a quality conscious organization that has complied with seed certification standards in the country and therefore produce seed of the highest quality and stakeholders have benefitted quite a lot from it.

**Table 4. Average seed production statistics by ICRISAT from 2007 to 2010.**

Crop	2007/2008						2008/2009						2009/2010					
	Ha		Average yield (Mt/ha)		Prod. Qty (Mt)		Ha		Avg yield (Mt/ha)		Prod. Qty (Mt)		Ha		Average yield (Mt/ha)		Prod. Qty (Mt)	
	BS	CS	BS	CS	BS	CS	BS	CS	BS	CS	BS	CS	BS	CS	BS	CS	BS	CS
Groundnuts	20	166.5	1.5	0.8	30	133.2	148.5	344.2	1	0.8	148.5	275.4	195	458.7	1	0.8	195.0	367.0
Beans	0	0	0	0	0	0	0	0	0	0	0	0	8	0	2	0	16	0
Pigeon peas	12	0	1	0	12	0	15	0	1	0	15	0	39	0	1	0	39	0
Rice	0	0	0	0	0	0							0	17.6	0	1	0	17.6

Source: Seed Services Unit annual reports for 2007/2008, 2008/2009, 2009/2010

### 5.2.5 Factors that have contributed to the current yield levels by ICRISAT farmers

- Implementation of various donor funded projects
- Availability of internal quality control mechanisms
- The subsidy programme has created a huge market for legume seed and there is an increase in the number of farmers multiplying seed. This has resulted into an increase in demand for foundation seed and therefore, foundation seed multiplication has increased every year.

### 5.2.6 Challenges faced by ICRISAT in seed programmes

- No reliable data on the actual quantities of seed required by the various programmes.
- Scattered fields of less than 1 ha make it difficult and expensive to monitor. Setting minimum ha for seed production would assist in addressing this problem.

### 5.2.7 Extension and Supervision during seed production

ICRISAT works in collaboration with the MoAFS in most of its programmes. ICRISAT farmers producing seed also access extension services provided by Ministry of Agriculture and Food Security (MoAFS) extension frontline staff. Excellent extension services are provided at least three times a year and the frequency increases in case of problems. In addition to this, ICRISAT has its own field staff that work closely with farmers and also provide extension services throughout the growing season. This makes ICRISAT farmers produce high quality seed and rejections are always minimal. Rejections with ICRISAT farmers are in most cases due to unsatisfactory isolation distance that are addressed through demarcating the field. Otherwise almost all fields are well managed and have good crop stands. Rejection levels at ICRISAT are not more than 2%.

### 5.2.8 Challenges faced for seed to be certified and how they are addressed

Just like with ASSMAG, delays in seed field inspection by SSU is also a challenge faced by ICRISAT's seed growers to have their seed certified. This is addressed by provision of transport by ICRISAT for SSU to inspect their fields. However this has improved especially during the 2010/2011 growing season due to procurement of new vehicles and also employment of additional staff by MoAFS. ICRISAT itself provided a vehicle to SSU through the MSID project and this has greatly improved mobility in the Unit.

### 5.2.9 Post harvest handling of seed by ICRISAT

Unlike ASSMAG, ICRISAT has made tremendous progress in terms of post harvest handling of seed. ICRISAT has very good seed storage facilities at its head office in Lilongwe. All seed produced by its farmers is delivered to ICRISAT for processing, storage and selling to various stakeholders. Another very good development is that ICRISAT has developed capacity in terms of testing for aflatoxin contamination especially in groundnuts. The organization has a laboratory that is well equipped and has well trained staff. Aflatoxin contamination is crucial when it comes to marketing produce on a commercial market. It is a requirement especially in export markets that the produce they buy should be produced from certified seed that has low levels of aflatoxin contamination. To this end, ICRISAT has very minimal losses due to post harvest handling. ICRISAT trains farmers in seed handling to reduce aflatoxin contamination. Training is provided once a year by ICRISAT staff in collaboration with MoAFS extension staff, NASFAM and other collaborating partners' field staff. This provides knowledge to farmers on how to deal with aflatoxin contamination in their produce. For instance, harvesting and storing seed at the right moisture content. However sometimes ICRISAT keeps seed for long periods of time and with time it loses viability. This seed is therefore destroyed. For instance in 2008, about 1000 kg of pigeon peas seed was destroyed due to loss of viability.

### 5.3 Seed production by NGO. A case of World Vision International and Self Help Africa

NGOs in Malawi are also very active in seed production programmes. A good example is World Vision Malawi that started seed production for some time back. The organization works in selected districts in the country in Area Development Programs (ADP). There are district offices headed by programme managers to coordinate the activities of ADP. However, overall coordination is done by the head office which is located in Lilongwe.

Self help Africa is also involved in seed production aimed at empowering smallholder farmers in terms of income and food security. The organization implements a pilot project in Balaka and Lilongwe districts. Crops multiplied include groundnuts, soya beans, pigeon peas and cassava. The seed was procured by the organisation and distributed to farmers for certified seed multiplication. After harvest, farmers are linked to markets to sell their seed.

#### 5.3.1 Seed production programme by NGOs

World Vision Malawi is mainly involved in production of certified seed of maize OPVs, groundnuts, soya beans, pigeon peas and beans. Each ADP has an association comprising of an average of 20 farmers. The main objective of the seed programmes is to empower farmers in that area with business skills and also improve food security through production and use of certified seed. The NGO procures foundation seed and distributes it to the farmers associations. It also provides extension services and facilitates training of farmers in seed multiplication. In addition, the NGO provides

support for seed certification. Foundation seed is procured from ICRISAT, DARS, Bunda College and farmer association but the main provider especially for groundnuts is ICRISAT.

Seed Services Unit is closely involved in NGOs seed multiplication programmes. The Unit certifies all seed produced by NGOs. ICRISAT is also closely involved in NGOs seed multiplication programmes especially in provision of foundation seed of groundnuts and pigeon peas for production.

### 5.3.2 Training of farmers in Seed production

The Seed Services Unit provides training to extension staff and farmers in seed multiplication in NGOs that have personnel. Extension staff is trained in order to assist farmers produce high quality seed and also for internal quality control. However these are not allowed to certify seed.

### 5.3.3 Factors that induce success in seed multiplication

- Availability of markets for both certified seed and commercial crop. Farmers produce more when there is a ready market for seed
- Availability of foundation seed. Production of seed would be enhanced in most NGOs if enough foundation seed was available
- Compliance with procedures and standards. Following standards has been a problem with most farmers. Seed production would increase if farmers follow all the seed certification standards and cultural practices.

#### 5.3.4 Major challenges in seed multiplication and marketing

- Lack of markets for both certified seed and commercial crop. WVI produces seed after assessing demand for seed so that seed produced is what is required by the various stakeholders. Use of Community Diaspora has been used by associations to help in the market search. Community Diaspora comprises the members of a community who are living in various places of work away from the community. These members form a board of directors for the association and provide social capital to farmer associations within the community. They help in the market search and also provide other strategic directions regarding the running of the seed multiplication association.
- WVI is also promoting contract farming where farmer associations are contracted to produce for a seed company although the challenge has been side selling to other buyers that offer higher prices. Contract farming arrangement with smallholder farmers is a challenge for crop/seeds that do not have a well structured market, similar to that of tobacco, as it is not easy to track farmers' sales and therefore not easy to deduct loan from source. Contract marketing is a better alternative as the contracting company does not spend on inputs in advance as is the case in contract farming arrangement.
- Seed producers, like most smallholders, usually produce small volumes of legume seed in scattered small pieces of land. This limits their ability to bargain for a better price individually. Village Commercialization model has been developed where farmers assemble their seed to a seed bank/warehouse for the association. This approach has helped smallholder seed producers take advantage of economies of scale and collectively bargain for a better price through the association and also share transport costs.
- A lot of smallholder farmers interested in seed multiplication do not have adequate knowledge. Providing seed production training through lead farmers who then should train fellow smallholder farmers has serious limitations. Usually this transfer of knowledge is not done as required. Training all farmers involved in seed production addresses the challenge in addition to training extension frontline staff.
- Inadequate foundation seed. Indicating quantity of foundation seed in advance would greatly assist to address the challenge in addition to involving capable farmers to multiply foundation seed for the rest of the farmers within the association.
- Scattered fields of less than 1ha makes inspection expensive and time consuming. NGOs have employed use of clan or farmers that are related because their fields are also close together and therefore make monitoring easier and cheaper.
- There are usually inadequate resources available for seed certification. Smallholder farmers should be encouraged to create a revolving fund for seed certification to assist in addressing the challenge.

## **6 Seed Industry and the Farm Input Subsidy Programme (FISP)**

Government is using the FISP to promote seed market development in the country. As such, all seeds in FISP are procured and distributed by the private sector. All the private sector players in the seed industry so far are members of the Seed Traders Association of Malawi (STAM). This body also serves as the mouthpiece of all private sector players in the seed industry. To ensure there is shared responsibility in maintaining quality and standards and also upholding discipline (and ethics) in the seed industry, Government only engages registered members of the Seed Traders Association of Malawi (STAM) in the FISP.

STAM members involved in FISP usually distribute their seed through the agro-dealer network in the country. However, most of these agro-dealers usually operate in urban and peri-urban market centres. 80% of STAM seed in FISP is distributed through this agro-dealer network and only 20% of seed is distributed through ADMARC<sup>5</sup>, which has a wider network reaching deep in the rural areas. While all commercial seeds for STAM<sup>6</sup> are distributed through agro-dealers, wholesale and retail shops throughout the country. Since agro-dealers are the main conduit of seeds to smallholder farmers, especially under the FISP, it urgently required that the existing agro-dealer network in the country be strengthened i.e., update the data base for these agro-dealers and training them on input handling and marketing.

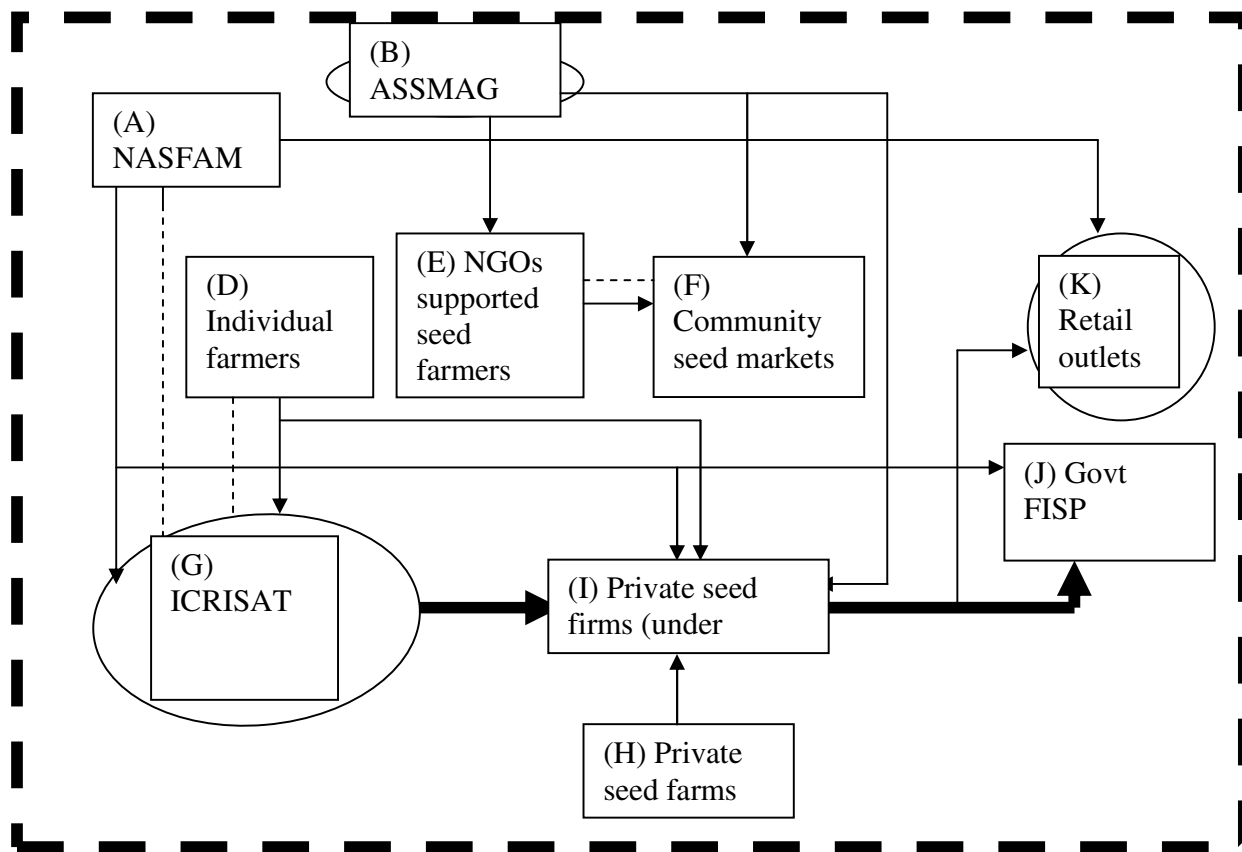
Figure 1: Legume seed marketing Channels

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<sup>5</sup> Agricultural Development and Marketing Corporation, a Government parastal involved in marketing of agricultural produce and inputs

<sup>6</sup> Seed Traders Association of Malawi (STAM) is an association for seed traders. STAM supply all seed in the FISP.





**Source: Computed by authors based on study results**

Small dotted line represents support services (e.g., basic seed provision from ICRISAT), firm line is market channel. Thick line is the main channel of seed marketing by volume and is targeting FISP as major outlet. Other seed also target commercial outlets such as retail shops or agro-dealer network. Agro-dealer net work handle both FISP and commercial seed.

### 6.1 Market Channels

A to G to I : NASFAM farmers produce legume seed and supply to private firms (STAM) through ICRISAT. In this channel, ICRISAT in collaboration with NASFAM, provide technical support to NASFAM seed producers including providing foundation seed to these farmers. ICRISAT buys the seed from NASFAM and processes it and sells to STAM at cost recovery. ICRISAT's involvement in the value chain is mainly to provide quality assurance before the seed is supplied to the private seed suppliers. This

is typical channel for seed that is meant for the FISP (AGIJ). However, NASFAM also produces and supplies seed directly to the private seed supplies (AI) and retail markets (AK).

FISP has attracted involvement of the private sector in legume seed production. For example DEMETA (Farmers World) and Funwe produce own legume seed which they supply to the Subsidy programme and direct retail through agro-dealers or other retail shops (HIJ) or (HIK).

ASSMAG mainly supplies its seed to NGOs (BE) or community markets (BF) and private seed companies (BIJ) or (BIK).

According to figure 1, reliable legume seed marketing channel for the Farm Input Subsidy Programme is through STAM with ICRISAT playing a crucial role of quality assuring legume seed supplied by smallholder farmers to STAM members. This seed is usually distributed to FISP beneficiaries through agro-dealers and ADMARC. ICRISAT provides important quality assurance process through its strict grading system. This seed is certified by SSU. Key Malawian private companies involved in legume seed marketing through the FISP are mainly DEMATA, Pea Cock and Funwe. Seed Co is the only major multinational seed company actively involved in legume seed marketing, also through the FISP. Legume seed marketing in absence of the FISP is still fragile and not well established. Most private companies rely mainly on the FISP market and do not have substantial sales through the commercial legume seed market.

## 6.2 What is the potential for legume seed in the country?

### 6.2.1 Impact of the FISP on seed market

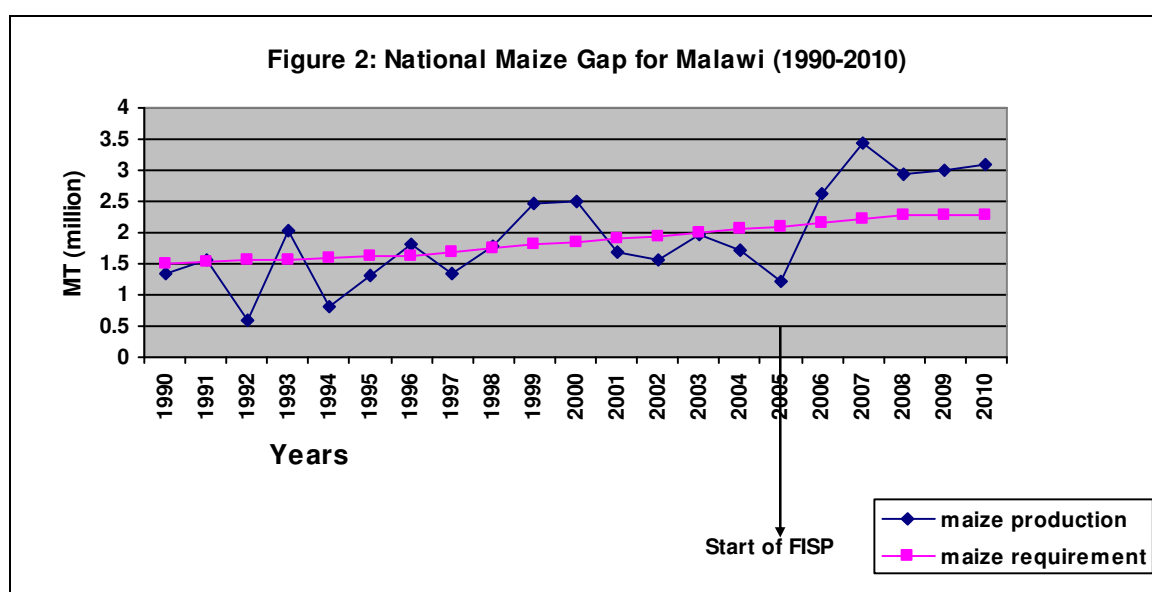
Government and its development partners realize the importance of using quality seeds in order to maximize fertilizer use efficiency and increase agricultural productivity. Certified quality seed (maize and legume) is therefore being promoted in this programme. In order to realize maximum benefits from the fertilizer package given to the beneficiary, there is need to provide the corresponding improved seed amount.

When the programme was introduced in 2006/2007 season it provided only 2kg of hybrid seed per beneficiary. However, this seed quantity is only enough for 0.1 ha compared to 0.4ha for fertilizer. It is expected that the programme will gradually increase the amount of seed per beneficiary to match the area covered by amount of fertiliser distributed under the FISP. Limited by funds available for the programme Government is gradually increasing the seed packs for both maize and legume seed. Current seed package for maize is 5kg for hybrids or 7.5 kg of OPV maize seed and 2 kg for legume seed. Targeted maize seed per beneficiary in order to match with the 100 kg of fertilisers (50kg for both basal and 50 kg top dressing) for the 0.4 ha is 10 kg for hybrids. It is expected that seed packs for legumes will also be increased over time. FISP targets 1.4 million households and with the projected seed pack increases, demand for quality seeds is huge. At current level of number of beneficiaries (1.4 million households) and legume seed pack of 2 kg per household, FISP alone provides a market for 2800 MT legume seed per year. This is an opportunity for smallholder seed producers that need to be maximised along side the commercial market that exist for legumes. Legumes are also increasingly becoming an important export crop for the country. Increased demand for legume crop will create demand for legume seed. Some private sector companies have noted this increasing demand in legumes and have started investing in legume seed production, notably DEMETA.

Introduction of FISP has also played a key role in promoting adoption of improved seed varieties among smallholder farmers in Malawi. For example, adoption of hybrids is now at 43% by 2009 from 25% in 2004 before the programme (STAM 2009). However, there are serious challenges in terms of certified legume seeds' availability in the country due to huge demands created by the FISP combined by demand for the commercial market. Since legumes were introduced as part of the FISP in 2008, scarcity of certified legume seed has been experienced and commonly reported in evaluation reports for the programme (see FUM 2010, Dorward et al 2010). For instance, in 2010/11 only 2,800 MT of legumes were distributed to smallholder farmers against the expected 3,200 MT on the subsidy market. 3200 MT was enough to cover 1.6 million beneficiaries for the 2010/11 programme at 2 kg per household.

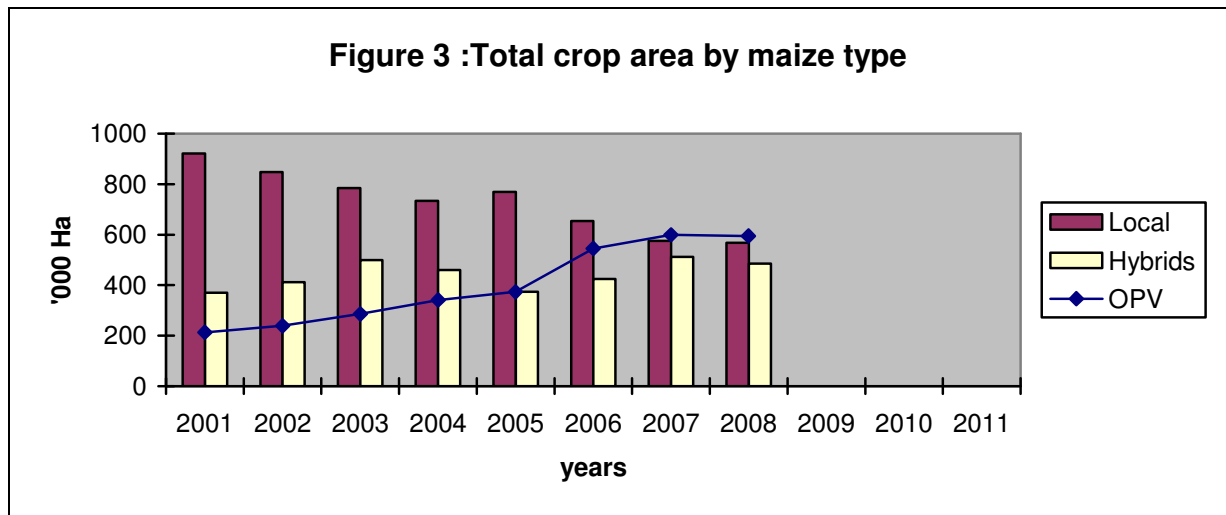
#### 4.1.2 Evidence of Impact of investing in improved agricultural technologies (inorganic fertilizers and quality seeds)

Independent evaluations<sup>i</sup> have verified that since the introduction of the FISP in 2005 the programme has helped the country produce surplus maize of 750,000 tons based on five year<sup>ii</sup> average (2006/7-2010/11) above the national requirement (Figure 2). This increased production has been achieved through increased use of inorganic fertilizers and quality seed coupled with good rains. Increased productivity and production has led to attainment of national food security and poverty reduction. Poverty has reduced to 39% by 2009 from 52% in 2004<sup>iii</sup> and an average economic growth rate of 7% over the past five years compared to the five year average of just over 1% prior to the introduction of the FISP (2001-05). There is anecdotal evidence that the FISP has also contributed to improved nutrition, improve school attendance, lower inflation and increased rural wages. The International Food Policy Research Institute estimates that agricultural growth needs to be maintained at over 6% for Malawi to meet the first Millennium Development Goal of halving poverty by 2015<sup>iv</sup>. Agriculture output growth rate in Malawi in the past four years has averaged 10%.

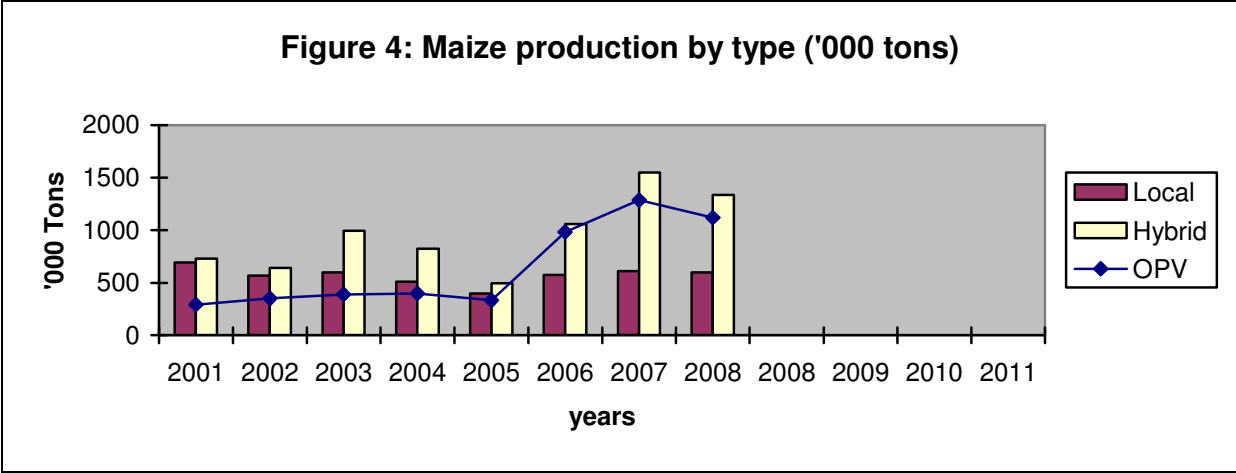


**Source:** Authors using MoAFS (crop estimates) and NSO population data

Impact of inorganic fertilizer on agriculture productivity and production under the FISP would be grossly undermined without complementary use of quality seeds. Another remarkable achievement under the FISP has been its great influence in shifting land area under local maize to hybrids and OPVs. Figure 3 indicates that the proportion of smallholder maize cultivated area allocated to high yielding maize varieties (hybrid+OPV) has increased from below 50% in 2001 to about 70% by 2008. This represents a huge shift in land allocation to higher yielding maize varieties.



Source: Authors computation using MoAFS (crop estimates) data

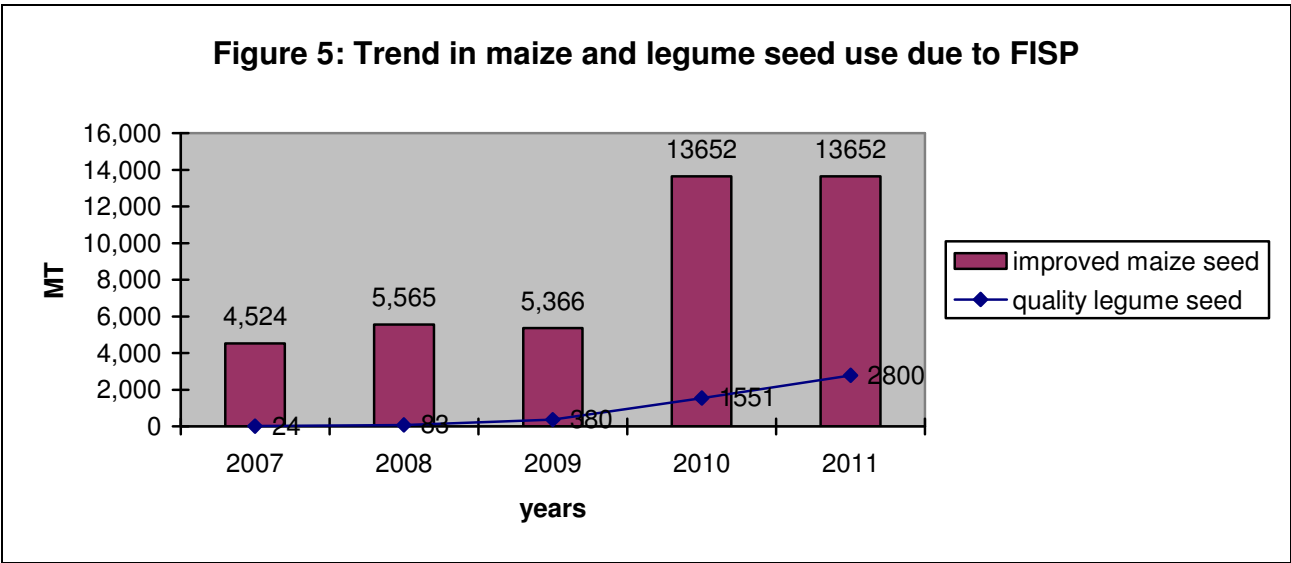


Source: Authors computation using MoAFS (crop estimates) data

Figure 4 indicates that high productivity and bulk of maize production between 2005/06 and 2010/11 has mainly been achieved through hybrids and OPVs, despite more land being under local maize. This is a remarkable contribution by FISP. This confirms the belief that promotion of improved varieties (hybrids) among smallholder farmers will help them produce enough on a small piece of land and therefore be able to release some of their land currently locked under low yielding local maize varieties to other high valued crops without compromising on household and national food security.

### 6.1.3 Increased trend in the use of improved quality seeds among smallholders farmers

Use of improved maize varieties and quality legume seed by smallholder farmers has increased in recent years due to FISP. For example, improved seed use (hybrids and OPVs) more than tripled between 2007 and 2011 and use of quality legume seed increased from 24 MT to 2880 MT in the same period representing an increase of 12,000 % using 2007 as baseline (Figures 5). This indicates that there is increasing demand for quality seeds (legume and maize) created by FISP. Further, there are no immediate plans by the Government of Malawi to phase out the farm input subsidy programme and therefore seed producers are assured of steady market for both maize and legumes for the next 5 years.



Source: Authors using data from Logistics Unit and MoAFS

6.1.4 Limited market options in the legume seed industry

The seed input markets have been liberalised in Malawi. However, there are only a few multinational companies (Monsanto, Seed Co and Pannar Seed) providing hybrid maize seed to both FISP and commercial markets. Other small to medium scale seed companies (usually not specialised in seeds only) providing composite maize seed as well as certified legumes. Uptake of improved varieties by the smallholder farmers outside the FISP is hampered by high prices offered on the commercial markets. Distribution of the improved seeds by STAM members is mainly done through agro-dealers. Legume seed production and marketing is mainly done by small to medium scale producers and trading companies.

There are serious challenges in terms of certified legume seeds’ availability in line with the huge demand under the FISP as well as need to supply other seed consumers especially NGOs. As earlier pointed out, only 2,800 MT of legumes were distributed to smallholder farmers in 2011 against the expected 3,200 MT on the subsidy market. Despite this demonstrated huge demand for legume seed, response from the

Multinational seed companies, in particular, has been cautious with limited investments. Multinational seed companies have mainly concentrated on maize seed production and have been quite reluctant to substantially invest in legumes citing limited demand especially that legumes are self pollinating and therefore easily recycled by smallholder farmers. In response to limited supply of legume seed to the FISP, the Government of Malawi and its development partners have embarked on legume seed multiplication programmes. For example, Irish Aid and ICRISAT are currently involved in a legume seed multiplication programme using smallholder farmers in the Central Region and Northern Region. This programme is also strengthening the functions of Seed Services Unit in doing spot checks to ascertain compliance by seed producers and suppliers in FISP.



## 7.0 CONCLUSION AND RECOMMENDATIONS

Use of high quality seed is very crucial to improve productivity and incomes of farmers in Malawi. In view of this, the study recommends the following for a successful seed production programme;

- Seed production should follow all the recommended procedures and standard requirements for high quality seed production.
- Internal quality control mechanisms should be included in all seed programmes for availability of high quality seed at all times. In this regard, all stakeholders need to have structures in place such as trained seed officers who will solely look into seed certification and quality control
- Good storage facilities and seed processing equipment should also be considered in any successful seed production programme for maintenance of seed quality.
- There should be a dividing line between seed production and commercial production as combination of these would compromise quality of seed produced
- Foundation seed multiplication should be incorporated in all seed production programmes in order to deal with shortage of foundation seed.
- Contract farming or contract marketing arrangements can help farmer association organizations to produce high quality seed without worrying for a market.
- Successful seed production model for smallholders should incorporate a revolving fund as a sustainability measure in order for seed production programmes continue even after project life cycle.
- Seed certification and quality control is vital in any seed programme. Therefore smallholder seed multiplication models should incorporate in the system seed certification and internal quality control measures.
- Crop management is vital in any crop production including seed multiplication otherwise yields are compromised. In this regard, any seed producer should have access to extension services and companies or farmers associations should be encouraged to have their own well trained extension frontline staff to complement Government efforts in extension service delivery. The staff can also be trained in seed certification and quality control for them to ably assist farmers.
- Post harvest handling is very crucial in any seed production programme. Seed deteriorates if not properly handled. Evidence suggests that post harvest losses especially due to aflatoxin contamination can be reduced in seed production if procedures and standards are followed. Therefore staff as well as farmers handling seed should be properly trained in post harvest handling.
- In terms of marketing of smallholder legume seed, the study recommends use of village commercialisation models where seed is assembled at one point and marketed as a group. This helps achieve economies of scale and cut costs on transport, bargain on price, promote sharing of information and technologies.

- Use of clan in seed multiplication programmes is also recommended to deal with the challenge of scattered field that are costly and time consuming to inspect and monitor.
- For a successful seed production programme, availability of markets is very crucial. Therefore, seed companies or farmer associations should be encouraged to explore external markets for seed. In addition transparency is very important in seed production to build trust amongst stakeholder on the seed offered for sale.
- Lastly, the study recommends ICRISAT seed production model coupled with some of the most important issues that NGOs are implementing like use of village commercialization models, use of clan and community Diaspora to be replicated and strengthened for successful smallholder seed multiplication program.

## 8.0 REFERENCES

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<sup>i</sup> Dorward et al, 2006, 2009, 2010; civil society Farmers Union of Malawi 08/09, 09/10

<sup>ii</sup> Incremental maize based on independent evaluations; 570k tons (05/06); 670k tons (06/07); 816k tons (07/08); 1 million tons (08/09), 770k tons (09/10)

<sup>iii</sup> 2009 Welfare Monitoring Survey

<sup>iv</sup> Agricultural Growth and Investment Options for Poverty Reduction in Malawi, IFPRI policy brief

## Appendix 1: List of stakeholders interviewed

No	Name	Organization	Position
1	Dr M. Siambi	ICRISAT	Country Representative
2	Mr Felix Jumbe	Managing Director	Peacock Enterprises Ltd
3	Mr Supply Chisi	Seed Business Officer	STAM
4	Mr Nesim Nyama	ASSMAG	Marketing Manager
5	Mr Madzonga	ICRISAT	
6	Mr C. Charlie	ICRISA	Scientific officer, Breeding
7	Mr Felix Sichali	ICRISAT	Malawi Seed Industry Development Project
8	Mr Ted Chirwa	ICRISAT	Seed Technician
9	Mr Mtembezeka	CARE International	
10	Ms Ruth Magreta	CIAT	Economist
11	Mr Mwendo Phiri	WVI	
12	Mr Kamanga	Self Help Africa	Program Manager
13	Mr Zidana Jere	Self Help Africa	Deputy County Director
14	Mr H.A.K Banda	ASSMAG	Production Manager
15	Mrs M. Simwanza	Seed Certification and Control Institute (SCCI), Zambia	Head of Seed Testing.

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Appendix 2



### Variety Release System in Malawi

