



SESAME SECTOR INVESTMENT OPPORTUNITY BRIEF

Sesame Seed Multiplication

EXECUTIVE SUMMARY

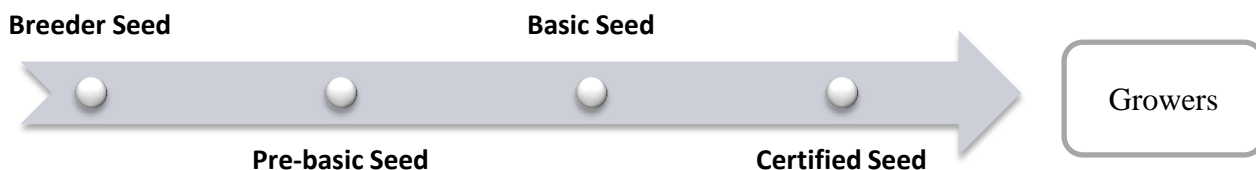
This Sesame sector investment opportunity brief highlights the establishment of a Sesame cultivating facility to produce Certified Sesame Seeds. The capacity of the farm is assumed to be 8 quintals/ha.

The total investment requirement is estimated at approximately \$401,745, out of which \$282,203 will be spent on purchase of agricultural machines and equipment. The Certified Sesame Seed farm will create employment opportunities for 22 individuals.

The project is financially viable with an average annual net profit of \$73,112, an average net profit margin of 25%, and a ten-year internal rate of return (IRR) of 20%. The NPV, at a 10% discount rate, is expected to be \$68,314.

PRODUCT DESCRIPTION

The maintainer of Sesame Seed variety has custody of Breeder and Pre-basic Seed. The basic seed is the progeny of the Breeder/Pre-basic Seed that is grown on Basic Seed production fields under the supervision of seed agencies. These seeds will in turn be used in order to grow Certified Seed on farmlands. It is the Certified Seed that is distributed to Small Holder and/or Commercial farmers for cultivation.



Ethiopian Institute of Agricultural Research (EIAR) is the maintainer of Sesame Seed varieties, as the only one which develops and supplies Basic Seed. The research so far has resulted in the following varieties.

Variety	Year of Release	Breeder/Maintainer	Origin	Seed yield (Quintals/ha)			Oil Content (%)	Rainfall (mm)	Days to Mature	Color	Local Name
				Irrigated	Lab	Farm					
Setit-1	2011	HuARC/ TARI		6.2 – 10	5.5 - 9		54	400 – 650	80 - 90	White	
Humera-1	2011	HuARC/ TARI		5.9 – 9	5 - 8		52	550 – 750	760 - 1130	White	
Barsan	2010	GoPARC/ SoRPARI									
Iidan	2010	GoPARC/ SoRPARI									
Obsa	2010	BARC/ OARI									
Dicho	2010	BARC/ OARI									
AHADU	2007	SARC/ ARARI									
BORKENA	2007	SARC/ ARARI									
Argene	1993	WARC/ EIAR	Cross	18	7 – 18		42 – 49		90 – 100	Brown	
Adi	1993	WARC/ EIAR	Exotic	17	17		48 – 52		85 – 90	White	
Serkamo	1993	WARC/ EIAR	Ethiopia	18	18		42 – 50		90 – 100	Brown	
Abasena	1990	WARC/ EIAR	Ethiopia	14	4 – 14		40 – 48	> 700	103 – 120	White	
Tate	1989	WARC/ EIAR			9	7	47 – 49	600 – 700	111 – 120	Grey	
Mehado-80	1989	WARC/ EIAR	Ethiopia	17	7		41 – 44		100 - 110	White	Wollega
S	1978	WARC/ EIAR	Uganda	12	4 – 12		40 – 46		100 - 120	Brown	
E	1978	WARC/ EIAR	Uganda	14	4 – 12		42 – 46		88 - 100	White	
T-85	1976	WARC/ EIAR	India	10	5 – 10		42 – 45	400 – 500	110 - 115	White	Humera
Kelafo 74	1976	WARC/ EIAR	Ethiopia	12	3 – 12		42 – 46		110 - 120	Black	Gonder

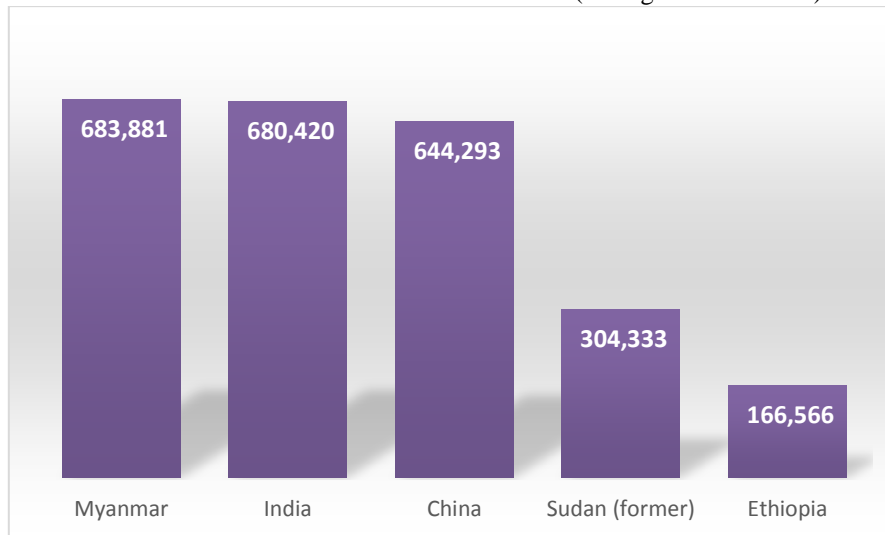
Table 1: Sesame Varieties in Ethiopia

Source: Crop Variety Register Issue No. 14, EIAR 2011; Adugna 1993, IAR 1997a Unpublished, Extension package of MoARD

ETHIOPIA SESAME SECTOR

Ethiopia is one of the major Sesame producers in the World. According to FAOSTAT (average 2002 – 2012), Ethiopia is the fifth highest producer of Sesame Seed following Myanmar, India, China, and Sudan (former).

Table 2: Global Sesame Production (average: 2002 – 2012)



Source: FAOSTAT

Although the Sector is one the highest performing sectors in the country, earning one of the highest foreign currency for Ethiopia, it is still not utilizing its full potential. Although the amount of export has been increasing, the production of Sesame has been decreasing for the past three years.

Poor agronomic practices and lack of access to non-shattering Sesame Seed varieties are some of the major problems hindering the development of the sector. One of these hindering practices is retention. The most common source of Sesame Seed is the seed cultivated in the previous year. This has resulted in the decrease in yield, in addition to decreased weight and size of the Sesame Seed cultivated.

Ethiopia Institute of Agricultural Institute (EIAR) is the only institution responsible for conducting research in order to develop Sesame Seed Varieties. This institution has developed a number of varieties in its different research centers which it supplies Ethiopian Seeds Enterprise (ESE). ESE is the only enterprise engaged in Sesame Seed multiplication and distribution.

SUPPLY

Ethiopian Seed Enterprise was the only organization which is engaged in the commercial supply of Certified Sesame Seeds. It is currently supplying four different varieties: Setit-1, Humera-1, Adi, and Hirhir. Hirhir is a variety which is imported from Sudan, while the remaining are local varieties.

Table 3: ESE Sale of Sesame Seed

<i>Variety</i>	2000/01	2001/02	2002/2003	2003/2004
<i>Setit 1</i>	-	-	0.50	105.63
<i>Humera 1</i>	-	-	1.50	94.26
<i>Adi</i>	-	5.00	-	-
<i>Hirhir</i>	260.00	-	-	-
Total	260.00	5.00	2.00	199.89

Source: ESE

DEMAND

Every year before Ministry of Agriculture (MoA) issues the tender requesting for the supply of Certified Sesame Seed, it collects the amount of Sesame Seed demanded from small holders in line with the flow chart below. The demand of Small holders is collected by their respective Kebele, Woreda, Zone, and Kilil. At each level the demand is revised and passed on to the next institution. MoA will finally revise the figure and issue the tender.

According to the data provided by MoARD, the Sesame seed demand for 2004/05 EC was 5,843 Quintal. The regional breakdown of this figure is as follows:

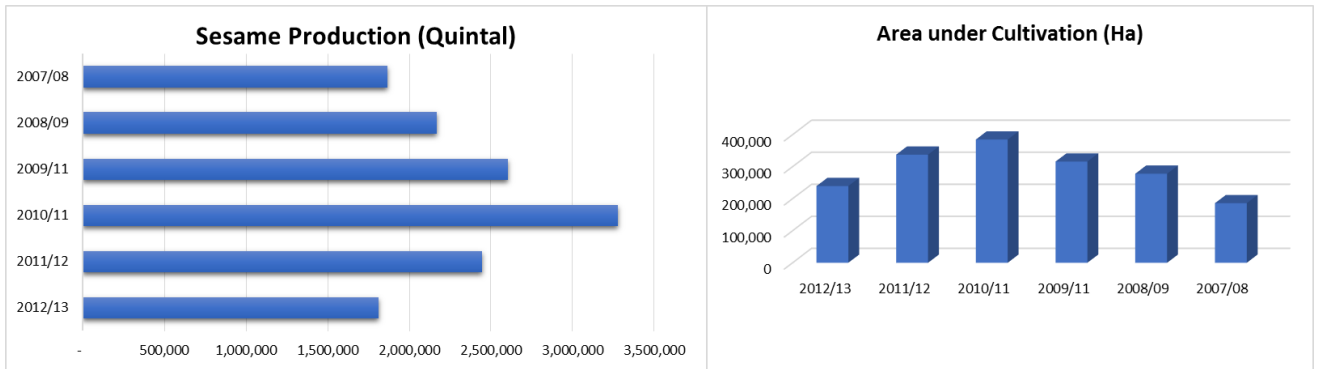
Table 4: Demand of different Regions in 2004/05 E.C.

Region	Amount (Quintal)
SNNP	2,280
Oromia	3
Benishangul Gumz	150
Afar	50
Somali	840
Amhara	1,170
Tigray	1,350
Total	5,843

Source: MoARD

The remaining demand for Certified Sesame Seeds arises from Commercial Growers and Processors. However, the most common practice among growers in the Sesame Sector is retention. Under this method, the growers reserve a certain percent of their cultivated Sesame Seed for planting in the next round of cultivation. Retention method of acquiring Sesame Seed has not yielded positive results, especially in the past three years. This is clearly observed in the decreased production starting from 2010/11 – 2012/13.

Figure 1: Historical Data of Sesame Production



Source: CSA

PRICING

Since the most common practice of sourcing Seed for cultivation in Sesame value chain is retention, the price of Sesame Seed is valued at the ECX market price. The only commercial supplier of Certified Sesame Seed is ESE. Since the commercial production of Sesame Seed through ESE is very low, it is fair to assume that the price offered ECX as the prevailing market price: \$ 2.15/kg. Factoring in the market price and operational expense incurred by the envisioned organization, the organization will be charging \$3.30/kg.

FARM CAPACITY

The Farm will be resting on 100 ha of land. The yield of the selected Sesame Seed is 8 quintals/ha. The Farm will be expecting to operate of 70% for the first year. It will reach a capacity of 90% on the 4th year, which it will maintain for the remaining of the project years.

RAW MATERIALS

The primary raw materials necessary for the envisioned organization is the Basic Sesame Seeds. The auxiliary materials required for the envisaged plant comprises of the packaging material, which is the PP Bag. This bag is locally supplied by a number of organizations.

UTILITIES

Utilities such as water, electricity, and telecommunication will be integral for the success of any enterprise, the envisioned one not-with-standing In the case of the farm, however, the organization will be incurring major utility cost as water expense. Additionally, fuel expense will also be high, as it sustains the different machines operating on the farm. The cost of these services is estimated to be minimal at slightly above \$3,000 per year.

PRODUCTION PROCESS

Ethiopian Institute of Agricultural Institute (EIAR) is the only organization which is engaged in research on Seeds. It is solely responsible for the development of Breeder Seed, Pre-Basic Seed

and Basic Seed. It is the latter seed which will be supplied to the envisioned organization. The cultivation process will use the Basic Seed as input while it will be cultivating Certified Seeds.

In order to effectively use the land and the seeds available, the envisioned organization will be using mechanized farming methods. For instance, land preparation is an integral part of Sesame cultivation. According to the Extension package offered by MoARD, appropriate land preparation includes ploughing and properly watering the land at-least three times before planting. As a result, the application of agricultural machines and implements such as tractors, planters, and others; and irrigation equipment is advantageous. Additionally, row planting will implementing during the time sowing.

ENVIRONMENTAL IMPACT

In light of the sensitivity of Organic Certification required by clients, the envisioned organization will not be using chemicals such as fertilizers. Rather it will use other methods of maintaining the nutrient content of the soil, such as crop rotation. The ideal crops for this purpose are Cotton, Sorghum, Corn, Peanuts, Alfalfa, Wheat, and/or Soybean. This will decrease the negative effects on the land and the neighboring farms as well.

MACHINERY AND EQUIPMENT

The organization will be investing in:

- Tractor
- Planter
- Irrigation Equipment

LAND, BUILDINGS AND CIVIL WORKS

Total land area required is 100 ha, which will be housing the Certified Sesame Seed farm and the warehouse. Land can be leased from the City Administration, and as such, the cost of leasing land which is estimated to be \$4,103.

STAFFING

The organization will be able to provide employment opportunity for 22 individuals. The estimated annual salary requirement is anticipated to be \$48,431. At time of processing machine installation, training will be provided to operators and management team on how to properly operate and maintain equipment.

FINANCIAL ASSUMPTIONS

The financial model of the project is based on the following assumptions;

	Project Years									
Quantity (Kg)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Certified Seed	56,000	64,000	68,000	72,000	72,000	72,000	72,000	72,000	72,000	72,000
Price (USD)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Certified Seed	3.33	3.50	3.68	3.86	4.05	4.25	4.47	4.69	4.92	5.17
Revenue	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Certified Seed	186,667	224,000	249,900	277,830	291,722	306,308	321,623	337,704	354,589	372,319

TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated to be \$401,745. The following table summarizes the total investment cost breakdown;

Investment Type	USD
Land Lease	28,205
Building and Civil work	38,462
Machinery and Equipment	282,203
Vehicles	30,769
Office Furniture and Equipment	5,128
Working Capital	16,977
Total Investment Cost	401,745

FINANCIAL ANALYSIS

Based on the projected financial statement, the project will generate profit throughout the projected period (10 years). Annual average net profit after tax is projected to be \$68,314. The IRR of the project will be 20%, indicating the financial viability of the business. The NPV, at a 10% discount rate, is expected to be \$187,848.

Description	Project Years									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sales Revenue	186,667	224,000	249,900	277,830	291,722	306,308	321,623	337,704	354,589	372,319
Operating Costs:										
Raw Material Cost	22,338	24,834	27,423	30,280	33,234	36,484	40,058	43,990	48,315	53,073
Wages and Salaries	48,431	50,852	53,395	56,065	58,868	61,811	64,902	68,147	71,554	75,132
Traveling Expense	2,422	2,543	2,670	2,803	2,943	3,091	3,245	3,407	3,578	3,757
Utilities	3,077	3,231	3,392	3,562	3,740	3,927	4,123	4,330	4,546	4,773
Fuel, oil and Lubricants	3,590	3,769	3,958	4,156	4,363	4,582	4,811	5,051	5,304	5,569
Insurance	4,772	5,010	5,261	5,524	5,800	6,090	6,394	6,714	7,050	7,402
Repair and Maintenance	10,003	10,003	10,003	10,003	10,003	10,003	10,003	10,003	10,003	10,003
Stationery and P.T.T	308	323	339	356	374	393	412	433	455	477
Audit Fee	1,282	1,346	1,413	1,484	1,558	1,636	1,718	1,804	1,894	1,989
Miscellaneous	1,538	1,538	1,538	1,538	1,538	1,538	1,538	1,538	1,538	1,538
Land Lease Expenses	4,103	4,103	4,103	4,103	4,103	4,103	4,103	4,103	4,103	4,103
Total Operating Costs	101,863	107,552	113,495	119,873	126,525	133,657	141,308	149,520	158,339	167,816
Gross Profit	84,803.91	116,447.85	136,405	157,957	165,197	172,651	180,315	188,184	196,250	204,503
Depreciation & Amortization	65,543	65,543	65,543	65,543	65,543	65,543	71,905	71,905	71,905	71,905
Profit Before Income tax	19,261	50,905	70,862	92,414	99,653	100,746	108,410	116,279	124,345	132,597
Less: Income tax	-	-	-	27,724	29,896	30,224	32,523	34,884	37,303	39,779
Net Profit	19,261	50,905	70,862	64,689	69,757	70,522	75,887	81,395	87,041	92,818