

*Full Length Research Paper*

# **Nigerseed value chain actors, and their constraints and opportunity: The Case of *Toke Kutaye* District, West Showa Zone, Oromia Regional State, Ethiopia.**

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The study was designed to identifying major value chain actors and their roles, constraints and opportunities of nigerseed value chain actors in Toke Kutaye district of Oromia regional state, Ethiopia. The data were collected from both primary and secondary sources. The primary data were collected from 148 producer and 37 value chain actors which are involved on input supplier, production, wholesaling, processing and retailing functions. The quantitative data was analyzed using descriptive statistics. The result of the study indicated that the average yield of the district was 5.37quintal per hectare; and only 6.1% of the respondent farmers had access to improved seeds, while the rest used local seeds. The study also showed that limited input supply, low yield potential, weak extension support, and poor attention to the crops were the major constraint in nigerseed production. In addition, it was evident that poor agronomic and marketing practices influenced the yield and marketability of the crop, respectively. Hence, policy aimed to increasing farmers' yield per unit area, access to improved inputs, improving infrastructure, strengthening cooperatives, promoting extension system; and supporting the local processors were recommended to reduce the challenges in nigerseed production and to promote the value added marketing in the district.

Keywords: Actors, Constraints, Nigerseed, Opportunities, Value chain

## **INTRODUCTION**

In Ethiopia, oilseed constitutes an important mainstay of the rural economy and the third major crops after cereal and pulses in terms of cultivated areas; and high value export products rank as the second foreign exchange earner products next to the coffee (Eneyew 2013). The oilseeds sector makes an important contribution to the Ethiopian economy, accounting for about 20% of the total foreign exchange earnings of the country (Lefebvre, 2012). This sector is one of Ethiopia's fastest growing and important sectors, both in terms of its foreign exchange earnings and as a main source of income for over three million Ethiopians; but also a number of traders, transporters, and oil millers (Wijnands *et al.*, 2007). According to CSA (2014) oilseeds occupy 6.58 % (about 816,125.31 hectares) of the grain crop area and 2.83% (about 7,112,592.38 quintals) of the production to the national grain total. From the total grain crops nigerseed covers 2.30% (about 285,303.47 hectares) of the grain crop area and 0.88% (about 2,202, 111.90

quintals), of the grain production.

Nigerseed is chosen for export earnings and its refined edible oil is essential for Ethiopian development strategy to increase the availability of national edible oil on the local market (Lefebvre, 2012). Hence, understanding the challenges and opportunities of nigerseed in the value chain analysis is a means to the end that makes an important contribution to the country's economy, and also it supports the livelihoods of many Ethiopians' value chain actors. In addition; it enhances competitiveness, efficiency and effective integration of chain functions and marketing which may improve a sustainable supply of raw material at desired quantity and quality that promote efficient processing capacity through the entire value chain actors.

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Bureau of Finance and Economic Development of Oromia (BFEDO, 2011) reported that West Shewa Zone produced nigerseed on 33,256.75 hectares of land with a total production of 256,961 quintals. Among the zonal districts, Toke Kutaye produced 16,678 quintals from 2,087 hectares of land that shows 16 and 43% share area of land and production zone, respectively. In the study area Nigerseed crop is recognized as a cash crop.

Nigerseed is the main oilseed crops produced, marketed as a local cash crop, and has been refined by oilseeds millers in Toke kutaye district. However, the production and supply of nigerseed and its product are unable to meet the demand of the oil millers as well as the growing population. Even if the district is nigerseed and linseed producer and oil millers are operating in it; at present, the society is receipting palm oils that were imported by the government and overpass of the raw crops of the district; and there was a research gap on specific commodity.

Thus, there is need to identifying the constraints and opportunities of nigerseed production using a value chain approach to fully understand and resolve the problem of nigerseed production, processing and supply to the market. Hence, to analyze factors that affect the supply of nigerseed in the study area and to gain viable upgrading of the production, processing and marketing of nigerseed; there should be clear picture of challenges and the available opportunities across the value chain.

Identification of actors involving the value chain, and major constraints and opportunities of actors has a paramount significance to increase market efficiency (Ayelech, 2011; Eneyew, 2013) and supply in the value addition process of nigerseed. Therefore, the objectives of the study were to identify major actors and their role; and constraints and opportunities of nigerseed value chain actors in Toke-Kutaye district.

## METHODOLOGY OF THE STUDY

### Study Approach, Data Sources and Analysis

In Toke Kutaye District there were 22,895 household farmers; of these 3,117 (13.6%) household farmers were nigerseed producers (DAO, 2014). The area and produced share were 16% and 43% of the zone, respectively (BFEDO, 2011). The district was selected purposively due to limited research work on nigerseed. In the district, 18 *kebeles* (the smallest unit in district) engaged in nigerseed production. Those *kebeles* were stratified (high, medium and low production area) based on their total production; considering mean plus or minus standard deviation as medium production, above and below mean plus or minus standard deviation as high and low producing areas, respectively. Out of the 18 productive *kebeles* in the district, six *kebeles* (two from each stratum) were selected randomly for the study. The *kebeles* were Kucco Gamoo, Mingo Babogalo, Toke Mexi, Kolba Anchabi, Toke Kombolcha and Imalaa Dawe

Ajoo. The simple random sampling technique was used to select the ultimate sample of households at each *kebele* proportionally, and the sample size was determined using Yemane (1967) sampling formula with 92% confidence level. In addition, other sample of nigerseed value chain actors (main actors, support service providers and influencers) were selected purposively from various levels of nigerseed value chain in the study area.

The primary data were collected formally by the method of individual interview by semi-structured interview schedule questionnaire, and focus group discussion using checklists. To identify opportunities that enhance the nigerseed value chain development, and performance; and constraints that limit production and marketing activities in the district assessment was made through interviewing producers and key informants, as well as with focus group discussions. Analysis of quantitative data was done using descriptive statistics.

## RESULTS AND DISCUSSION

### Main actors and their constraints

The main actors are those individuals or institutions who take ownership of the product title (Bezabih and Mengistu, 2011). Accordingly, the main actors of nigerseed value chain in the district are input suppliers, producers, traders, processors (oil millers), retailers, and consumers. Each of these actors adds value in the process of changing product title. Some functions or roles are performed by more than one actor and vice-versa.

### Input suppliers

Sources of input suppliers in nigerseed production were District Agricultural Office, Cooperative promotion office and Multipurpose Farmers Primary Cooperatives. They were only providing 6.1% improved nigerseed varieties (*Kuyu and Shambu*) seed. The majority (68.2%) of the sample producers were using local seed from their own; while 25% used by purchasing from the market (Table 1).

### Producers

Producers are generally household farmers having different land size to carry out farm inputs preparation on their farms or procuring inputs from other sources. On average, producers hold 3.42 hectares and allocate 0.5 hectare of land for nigerseed cultivation. The average nigerseed yield of the district sample respondents was 5.37quintal (qt) per hectare (Table 2). The average yield was lower than the national average, which accounts 7.72qt per hectare (CSA, 2014).

Survey result indicated that nigerseed farming system is a source of cash income and means of improving soil fertility for the producers in the study area. But there were

**Table 1.** Types and source of input used in nigerseed production of the District

Response to Agricultural inputs usage	Type of inputs			
	Local seed		Improved seeds	
	N	%	N	%
Yes	139	93.9	9	6.1
No	9	6.1	139	93.9
<b>Total (N)</b>	<b>148</b>	<b>100</b>	<b>148</b>	<b>100</b>
Source of Input				
Owen	101	68.2	0	0
Research Center	0	0	4	2.7
Market	38	25.7	0	0
Cooperatives	0	0	5	3.4
Total (N)	139	93.9	9	6.1

Source: Computed of own survey, 2015

**Table 2.** Land allocated, production and yield of niger seed of the district

Items	N=148	Minimum	Maximum	Mean	Std. Dev
Total land Holding (ha/HH)		0.5	9	3.42	1.62
Land allocated (ha/HH)		0.11	2	0.50	0.321
Production (qt/ha)		0.5	12	2.76	1.90
Yield (qt/ha)		3.8	7.5	5.37	1.07

Source: Survey result, 2015.

**Table 3.** Nigerseed production problem of the household respondents

Major Problems	Number of Respondents (148)	Percentage
Low yield gain	113	76.4
leaf worm	87	58.8
Weed	61	41.2
Frost	39	26.3
Shattering of the crop	96	64.8
None used of fertilizers	148	100
None used of herbicides	148	100
None used of insecticides	148	100

Source: Survey result, 2015.

factors that limit the production of nigerseed in the district; these are lack of improved varieties, poor agronomic practice, absence of nigerseed based extension service; and no crop protection measure against insect, pest and weeds. Shattering characteristics of the crop, shortage of land and low yield per hectare and frost are the major problems related to nigerseed production (Table 3). Price fluctuation of the produce and low bargaining power over the traders were the main identified farmers' marketing problems.

To accelerate the rural livelihood of the farmer's, delivery of extension services played an important role. But as survey result pointed out (Table 4), about 29.1% sample

respondents acquired the service once per year, 8.1%, twice per year, 8.8% three times per year and 22.2% acquired the service four times per year; by development agent, district Agricultural experts and through the combination of both district experts and development agents. About 31.8% of the respondents were non users of the extension service.

### Wholesalers

Wholesalers are known to purchase bulky products with better financial and information capacity; and proportionally it accounted for 83.18% market share

**Table 4.** Access to extension service and their sources

Activities	Items	N	%
Access to extension service	Yes	101	68.2
	No	47	31.8
Source of extension service	Development Agent (DA)	64	43.2
	DA & district expert	37	25
Frequency of extension service	Once per year	43	29.1
	Twice per year	12	8.1
	Three time per year	13	8.8
	Fourth time per year	33	22.2

**Source:** Own computation of survey result, 2015

**Table 5:** Proportion of farmers produce sold to different actors

Actors	N=148	Produce in %	
		Mean	Std. Dev.
Wholesalers		83.18	31.25
Cooperative		4.94	16.02
Processors		8.57	23.02
Consumers		3.31	11.90

**Source:** Computed of producers survey data, 2015

(Table 5). They were performing the wholesaling activities to others wholesalers, oil refiners and exporters found in Addis Ababa (capital city of Ethiopia, far away 124km from the study area). Low supply of the product, quality problem, taxation, shortage of capital, and warehouse rent were some of the identified problems by the wholesalers.

### **Multipurpose farmers primary cooperatives (MPFPC)**

According to the district Cooperative Promotion Office, there are 23 cooperative associations. Beside input supply, they are performing wholesaling activities and proportionally they accounted for 4.94% of market share (Table 5). The fundamental concerns were to maximize benefit of their members through providing necessary farm inputs and assembling grain crops and other oilseed for marketing. The study showed that MPFPC purchases nigerseed and linseed produce from their members at fair market price. Unstable supply of the product, limited capital, seasonal based marketing of the produce, corruption, and unskilled committee of MPFPC were the major marketing problems.

### **Processors**

Local processors make spices from nigerseed which is locally and occasionally consumed in the form of *litlit*

(grounded nigerseed) with *kolos* (roasted barley or wheat) at a farmer's household level and street *kolo* traders. Oil processors of the district averagely mill 27.5 liters of oil and 58.5 kg oil cake from one quintal of nigerseed. Based on the availability of the product and milling capacity of their refiners they mill five to seven quintals of nigerseed per day (eight hours) per milling machines. In addition to the processing function, they also play a packaging or bottling, wholesaling and retailing activities on their products. Shortage of supply, due to wholesalers supply to regional exporters or millers, imported palm oil, absence quality assurance among millers, price and electric power fluctuation; and taxation problems were the main constraint of the processors identified in the study area.

### **Retailers**

The study revealed that, neither licensed nigerseed nor nigerseed oil retailers in the study area are available. However, licensed palm oil retailers were available. Nigerseed oil retailers are supplier and mini-super market traders those who retail agro-processed and other products. They are the last link between processor and consumers; and they mostly buy nigerseed and linseed oil from Guder oil millers and other oil products (like palm oil, sunflower oil, soybean oil, etc) from oil wholesalers of Addis Ababa and resell to urban and rural consumers,

**Table 6.** Nigerseed marketing constraint of the sample respondent traders

Major constraints	Number of Respondents (17)	Percentage
Price fluctuation	6	35.52
Shortage of supply	17	100
Limited capital	6	35.52
Corruption and unskilled committee	3	17.64
Product Quality problem	17	100
Taxation problem	9	52.9
Fluctuation of electric power	3	17.64
Absence of quality assurance	3	17.64
Expensiveness of nigerseed oil	5	29.4
Imported palm oil and exported of raw crop	3	17.64

Source: Survey result, 2015.

**Table 7:** Credit and market information availability to the sample farm households

Variables	Items	Toke Kutaye District	
		Number of respondent	Percent (%)
Access to credit	No	131	88.5
	Yes	17	11.5
	Total	148	100
Access to Market information	No	51	34.5
	Yes	97	65.5
	Total	148	100

Source: Survey result, 2015

according to consumer's requirement and purchasing power. Shortage of supply, product quality, taxation, price fluctuation, limited capital, and expensiveness of nigerseed oil were some of the identified problems in the study area (Table 6).

### Consumers

Two types of consumers were identified in the district. These are individual household and firms (like restaurant, cafe and dairy and fattening enterprise) consumers. Interview with firm's consumers showed that nigerseed oil and oil cake were low demanded due to their expensiveness; and another alternative of palm and linseed oil with relatively low prices used to maximize their profit. On average, half liter oil and 12qts oil cake are consumed per week per household and fattening farm, respectively. Fattening firms were also less demanded for a nigerseed oil cake for the reason of linseed oil cake more preferable to fatten their animals.

### Support Service Providers

Support service providers are an indirect value chain actors those who not take the title of the product (Fenta et al., 2011). But their supports are essential for value

chain actors. Service providers of nigerseed in the study area are District Agricultural Office, Cooperative Promotion office, governmental and private banks, and micro financial institutions. They provides advisory service, market related information facilitation of market linkage, and diversification of technologies facilitate access to inputs and provide technical support in crop production.

Oromia Credit and Saving Share Company (OCSSC) was a governmentally owned share company which provides financial service to the producers. Its delivery service includes saving, loan provision and consultancy, and training service. The survey result indicated that only 11.5% of the sampled producers' respondents got credit facility from micro finance institutions (MFI) like (OCSSC and *Ishet* MFI) with minimum of 900 to a maximum 3000 birr (Table 7). The district nigerseed value chain actors especially, traders (like wholesalers) and processors have access to financial services from government and private banks (Commercial Bank of Ethiopia and Oromia International Bank) to meet their financial requirement.

### Influencers

The influencers are governmental institutions that execute the policy, strategy and program of the district;

according to rule and regulation given to their specific and collective mandate to their offices. They include; District Revenue Authority, Market Development and Trade Office, and Investment Office. Interviews undertaken with key informants indicated that all of them perform awareness creation, registration for licensing, supervising, controlling and taking corrective action in case of occurrences of difficulty.

### **Production and Market Opportunities**

Favorable climatic condition, low frequency ploughing, existence of processors in the district, potential of the crop to maintain soil fertility, low cost of production and the high demand of the crop by the traders and consumers are opportunities in nigerseed farming system. In addition, existence of different market outlets, multipurpose farmer's primary cooperatives, access to infrastructures, access to another oil crops, and presence of oil mill are identified as marketing opportunities.

### **CONCLUSION AND RECOMMENDATION**

Nigerseed value chain actors in Toke Kutaye district include input supplier, producers, traders, processors, and consumers. The major constraints of actors in nigerseed value chain includes, lack of modern inputs, weak extension support, low yield potential of nigerseed, poor agronomic packages, unstable supply, lack of product differentiation, exporting of the raw crop and importing of palm oils, weak horizontal and vertical linkages among actors, and less governmental attention to the crop affect production, marketable supply and volume of sales in the district. Hence, improving production and productivity through encouraging use of full agronomic packages should be undertaken. Moreover, oil millers must introduce contract farming arrangements with farmers to sustain the production and supply of nigerseed. In addition, all the chain actors must developed value chain governance that supports farmers from the grass root level to market transaction.

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### **REFERENCE**

- Ayelech T (2011). Market chain analysis of fruits for Gomma Woreda, Jimma zone, Oromia National Regional State. M.Sc thesis presented to School of Graduate Studies, Haramaya University, Ethiopia. Pp110.
- Bezabih E, Mengistu N (2011). Potato Value Chain Analysis and Development in Ethiopia: Case of Tigry and SNNP regions. Pp 6,28,37.
- Bureau of Finance and Economic Development of Oromia (BFEDO) (2011). The National Regional Government of Oromia Physical and Socio Economic Profile of West Shewa Zone and Districts, Finfine Oromia. Pp 12, 305-306.
- Central Statistical Agency (CSA) (2014). Agricultural Sample Survey 2013/14. Report on Area and Production Crops, Private Peasant Holdings, Addis Ababa Ethiopia. Pp 11-18.
- District of Agricultural Office (DAO) (2014). Annual Report. Pp. 1-14.
- Eneyew T (2013). Evaluation of Ethiopian Nigerseed (*Guizotia Abyssinica* Cass) Production, Seed Storage and Virgin Oil Expression. Landwirtschaftlich-Gärtnerische Fakultät der Humboldt-Universität zu Berlin. Pp 1, 9-16.
- Fenta M, Drost S, van Wijk J (2011). Multi-Stakeholder Platform Contribution to Value Chain Development. The Edible Oil and Oilseeds Value Chain in Ethiopia, Final Case Study Report. Pp 14-16.
- Lefebvre V (2012). Mid-Term Review of the Joint Program "Edible Oil Value Chain Enhancement" - Final Report. Pp18-30.
- Wijnands JHM, Biersteker J, Van Loo EN (2009). Oilseeds Business Opportunities in Ethiopia, Public Private Partnership on Oil (PPPO). Ministry of Agriculture, Nature and Food quality, The Hage, The Netherlands. Pp10- 47.
- Yemane T (1967). Statistic an Introductory Analysis, 2<sup>nd</sup> ed., New York: Happer and Row.