FROM DURUM WHEAT SEED TO PASTA:

PROSPECTS AND CHALLENGES OF PASTA PRODUCERS IN EHIOPIA

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By:

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Declaration

I, Amare Jima Eshette, declare that this project work entitled “From Durum Wheat Seed to Pasta: Prospects and Challenges of Pasta Producers in Ethiopia” is my own original work. I have carried out it independently with the guidance and suggestions of the research advisor. And it has not been presented in Addis Ababa University School of Commerce or any other University.

Amare Jima ____________________

May, 2015 Signature

AAU ____________________

Date

This thesis has been submitted to Addis Ababa university school of Commerce for examination with my approval as a University advisor.

Temsgen Belayeneh (PhD)	----------------------	June 1, 2015
Name of Advisor	Signature	Date

STATEMENT

OF

CERTIFICATE

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

Assessment on

FROM DURUM WHEAT SEED TO PASTA:

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By

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Approved by Board of examiners:

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Advisor	signature
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Abbreviation and acronym

DW	Durum Wheat
BW	Bread Wheat
DZARC	Debrezeit Agricultural Research Center
CSA	Central Statistical Authority
EMA	Ethiopian Milling Association
CGIAR	Consultative Groups for International Agricultural Research Centers
FMCG	Fast Moving Consumer Goods
AA	Addis Ababa
Ddfc	Dire Dewa Food Complex
WUR	Wagignegn University Research
ERCA	Ethiopia Revenue and Custom Authority
CIMMYT	International Wheat Maize Research Center
EIAR	Ethiopian Agricultural Research Institute
FAO	Food and Agricultural Organization
ICARDA	International Center for Agricultural Research in the Dry Areas
AACCSA	Ababa Chamber of Commerce and Sectorial Associations
ECX	Ethiopia Commodity Exchange
EGTE	Ethiopian Grain Trade Enterprise
FFPPA	Flour and Flour Products Producers Association
GDP	Gross Domestic Products
JV	Joint Venture
RARI	Regional Agricultural Research Institute
NGO	Non-Governmental Organization
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
ToR	Terms of Reference
EAB	East Africa Holding
AVCPO	Agricultural Value Chain Project in Oromia

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Abstract

This study aims at exploring the challenges and prospects of Ethiopian pasta processing sector from the diverse socio-economic setups of smallholder farmers to commercial large-scale pasta factories. The study was conducted in 14 Pasta producing firms among them, Kality food Share Company, Dire Dawa Food complex and East Africa Holding were the leading manufacturer. The total pasta production and import supplied to the local market was about 69,420 tons. Demand for pasta has been growing at an average rate of 22.7% per annum. About 63 % of the market, however, had been supplied by local producers with an average growth rate of 9%per annum. Both quantitative and qualitative approaches were used in the course of analyzing the problems. Both primary and secondary data were collected using questionnaires, interviews and document reviews. Results showed that the major challenges of local pasta producers were the shortage of principal raw materials from local market, huge import costs, under capacity utilization, lack of attention, ineffective marketing to link durum growers to food industries, globalization and increasing competition, poor production technologies and shortage of working capital, are among some of the challenges faced by pasta manufacturing companies. In general, the industry is plagued with a number of constraints and the country remains a net importer of raw material (durum wheat) and processed pasta products. There were also opportunities for pasta producers; rapid urbanization where citizen adapting new life style for which pasta is perfect, large population offers huge market potential for pasta products, presence of unsatisfied demand, presence of pasta on the table of families was considerably increasing, export market potential, demand for pasta growing in the domestic market faster than for any food staff (22.7% per annual), the favorable climatic condition and suitable agro -ecologies to produce principal raw material were among the opportunities. The absence of favorable policies and weak linkages among the different actors in the pasta value chain was considered to be another important factor that negatively affects the pasta industry development in Ethiopia.

Key words: Pasta products, opportunities, challenges, Durum wheat, agricultural cooperative pasta producers

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Ethiopia saw a small-scale industrial revolution in the early 1960s food processing factories have been taking the leading role. Those firms in the beginning were dominantly established by foreigners who understood the country's potential for food and agriculture. Where, durum wheat has been cultivated in Ethiopia for thousands of years, it has gradually been replaced by bread wheat. However, demand for pasta, spaghetti and macaroni has shown a steady growth to lead the industries for wheat importation. The high demand with the pasta factories, estimated to be between 300,000 to 500,000 quintals fulfilled by the local production and import (Fortune, 2014).

The Ethiopian pasta processing sector is complex. The sector actors are from diverse socio-economic setups from rural smallholder subsistence farmers to commercial large-scale pasta factories. Currently, there are 20 firms operating in the industry **(**Chiari, 2013).The country`s demand of pasta and macaroni is met through local production and import. However, the most important component is that of production by domestic firms.

The globally known pasta is stated by the American National Pasta Association as a perfect foundation for a healthy, delicious and satisfying meal. US produces 4.4 billion pounds of pasta every year that makes it the second largest producer in the world next to Italy, according to the NPA.The emerging food habits and demands would make pasta more favorable in Ethiopian cuisines," pasta holds many favorable features that would increase its share in the weekly food consumption until five kg per capita per year for tens of millions of families (FAO, 2009).

On the other hand, pasta could simply be an ideal meal to keep one healthy and fit because of its nutritional values. With so many options for building lower calorie, nutrient rich-pasta meals, one never gets bored. Pasta is generally served with some type of sauce; the sauce and the type of pasta are usually matched based on consistency and ease of eating. Northern Italian cooking uses less tomato sauce, garlic and herbs. While in Ethiopia red pepper is added to the food to revamp the taste. However, tomato sauce is the most common way of serving pasta.

In some developing countries the changing lifestyle is the outcome of having better income. Thus, the habit of living on pasta and other foods items with fewer calories are extremely important, according to physicians and food science experts. Moreover, a complex carbohydrate like pasta provides the optimum type of "fuel" to power muscles and the brain. As it is digested more slowly it provides a slower release of energy to keep one going throughout the day(Singh, Kota and Dvorak, 2011).

The pattern of production of Pasta in Ethiopia is marked by a consistent growth trend of production in some year and production has gone down to a minimum level in other years. This variation was observed in pasta manufacturing companies. The internal demand of pasta is not yet fulfilled through local production so huge importation of pasta is taking place(Chiari,2014).

Demand for pasta is growing in the domestic market faster than for any food staff, so ever increasing amount of durum wheat grain are needed. Due to this many farmers and agro processors join the durum wheat market and use the opportunities available and become much profitable from this. But this success is not enough compared to the opportunities available**.** In addition to domestic production, the country also imports considerable amount of macaroni and pasta from export market. For pasta, the largest volume originates from Turkey and Oman. The demand for macaroni and pasta is dependent on size of urban population and per capita income growth. Since both are increasing, the resulting effect will be multiplicative (WUR, 2012).

1.2 Statement of the problem

Pasta and macaroni producing firms face many challenges to operate efficiently at full capacity all year round, in a study made by the Central Statistical Agency. Product wise average capacity utilization reveals that pasta had utilization rate (68%), followed by macaroni (61%). The average capacity utilization rate of pasta industry was 64.5%,while that of biscuits was 67%. Compared to other food processing industry the sub sector had relatively lower utilization rate (CSA, 2012). Capacity utilization of Ethiopian pasta factories remained low due to various reasons.

Durum wheat is an economically important industrial crop for the manufacturing of pasta products (macaroni, spaghetti and semolina). The key success to durum wheat is the existence of genetic diversity and conducive agro- ecological environments for durum wheat production both in rain fed and irrigation. Ethiopia, being the center of diversity for durum wheat, has tremendous potential for the development of varieties that meet yield, rust resistance as well as important quality traits (Ayele *et al*., 2009). However, the potential has not yet been fully exploited.

Wheat is one of Ethiopia's most important cereal crops by production. About 4.8 million farmers produce close to 3.4 million tons of wheat across 1.6 million hectares of land (CSA, 2013). Bread Wheat still constitutes the vast majority of production, estimated at 60% where durum wheat with current estimated share of 40% is becoming increasingly more important, especially for processed products such as pasta and macaroni.

To date, there is a strong demand for durum wheat by pasta making industries and huge consumption of pasta by Ethiopian citizens. But due to low volume of durum wheat production local factories could not find sufficient durum wheat supply in the local market. Therefore, Ethiopian pasta industries are obliged to make huge and expensive import of the required raw materials. In the 2014 fiscal year, Ethiopia imported 472,147ton of durum wheat, at a cost of 174.6 million dollars (ERCA, 2014).

Demand for pasta is growing in the domestic market, so ever increasing amount of durum wheat grain are needed. Due to this many farmers and agro processors join the durum wheat market and use the opportunities available and become much profitable from this, but this success is not enough compared to the opportunities available due to various reasons.

The subject of this study has been chosen because of the strategic importance of durum wheat to farmers, seed companies/cooperatives, entrepreneurs, state farms, agro industries and the general economy as well, therefore, it need much attention. Hence, the researcher planned to investigate the prospects and challenges in this industry from initial raw material supply to large scale pasta producers.

1.3 Basic research questions

Specifically the study is designed to address the following basic questions:

1) What are the major marketing problems that pasta making firms currently face?
2) What are the major marketing opportunities or prospects that are available to pasta making firms?
3) Why Pasta producing firms are unable to operate efficiently at full capacity all year round?
4) What factors contribute to the decline or shortage of durum wheat in Ethiopia?

1.4 Objective of the study

The general objective of the study was to assess the prospects and challenges in Ethiopia pasta industry from the point of initial raw material production to point of consumption and to uncover the explanatory variables that define the prospects and challenges.

1.4.1 Specific objectives of the study

- To identify those opportunities and challenges in the raw material supply side of pasta value chain.
- To identify those opportunities and challenges in the demand side of pasta value chain.
- To identify the reason for low level of performances and lack of competitiveness.
- To identify those factors that contributes to the decline or shortage of durum wheat in Ethiopia.

1.5 The scope of the study

The scope of the study was covered prospects and challenges of pasta makers from point of raw material supply to manufacturing. The study was delimited to durum wheat producers and pasta manufacturing companies. This issue is purposely selected, in order to understand the detail of the challenges and opportunities in the industry.

1.6 Significance of the study

This study provide highlight information about prospects and challenges of Ethiopia pasta industries from initial raw material production to consumption, and thereby contribute some additional knowledge to the existing limited studies available on this topic area.

Prospects and challenges helps policy makers to design better durum wheat value chain development strategies. This study contributes some valuable inputs for managers and board of directors, durum wheat growers, investors and other stakeholders to overcome the identified constraints and promote the opportunities exists in Ethiopia pasta industries.

The study also contributes towards the advancement of theoretical knowledge and served as a reference material for similar studies in the future.

1.7 Limitation of the Study

The lack of cooperation of the respondents and their commitment to complete filling the questionnaires and interviews to devote their time to provide the researcher with the relevant information has limited the outcome of the research. Since the study was made based on interviews and questionnaires, these methods were not certain to clearly reveal real situations due to personal biased, may not be volunteer to give the true situation/sense of the organizations strategy because they may fear that their competitors may imitate their ideas. The study was conducted on Pasta makers and uncovered the other stakeholders such as durum wheat grain growers, marketing intermediaries and key customers for pasta products.

1.8 Definition of terms and concepts

- **Marketing** is the process by which companies create value for customers and build strong Customer relationships in order to capture value from customers in return
- **Durum wheat** The grain from which pasta is made
- **Market**the set of all actual and potential buyers of a product or service. These buyers share a particular need or want that can be satisfied through exchange relationships.
- **Value chain** the concept of value chain encompasses the full range of activities and services required to bring a product from the initial input-supply stage, through various phases of production to its final market destinations—whether local, national, regional or global. The Value chains include input suppliers, producers, processors and buyers. They are supported by a range of technical, business and financial service providers.
- **Marketing strategy t**he marketing logic by which the company hopes to create customer value and achieve profitable customer relationships.
- **Market segmentation** dividing a market into distinct groups of buyers who have different needs, characteristics, or behaviors, and who might require separate products or marketing programs
- **Marketing mix**the set of tactical marketing tools—product, price, place, and promotion—that the firm blends to produce the response it wants in the target market.

- **Marketing information system (MIS)** People and procedures for assessing information needs, developing the needed information, and helping decision makers to use the information to generate and validate actionable customer and market insights.
- **Sample** a segment of the population selected for marketing research to represent the population as a whole
- **Semolina** is the endosperm or heart of the durum wheat kernel - **a hard wheat** variety with very high gluten content and high protein to carbohydrate ratio. Durum wheat is more coarsely ground than other flours. The milling process separates the endosperm from the rest of the grain.
- **Durum flour** is finely ground semolina (endosperm). Its amber color is what imparts the rich yellow typical of semolina pasta which is produced industrially by extruding or forcing the firm dough through metal dies to create the many shapes available. It produces a very resilient product that can stand up to the pasta making process and retain its shape in cooking, even if overcooked.

1.9 Organization of the research paper

The research report has been organized in to five chapters:

The first chapter covered the introduction part, dealing with background of study, statement of problem, research question, and objectives of the study, definition of terms, significance and scope of the study. The second chapter discusses the review of related literatures about the subject matter. The third chapter focused on research design and methodology, which was used by researcher. The forth chapter discussed the result of the study based on findings; and finally, chapter five covered the conclusions of the findings and forwards recommendations.

CHAPTER TWO:

REVIEW OF RELATED LITRETURE

This section of the research paper presents the review of various relevant secondary materials ranging from books and research articles to different published sources encompassing open internet sources and unpublished materials including handouts all of which are found to be vital foundation for the research paper.

2.1 Business Opportunities for Food Processing in Ethiopia

The food processing sector of Ethiopia is the largest manufacturing industry in the country. According to a country study report by WUR (2012), the food processing industry accounted for 39% of the gross value of production (GVP) in large and medium size manufacturing in 2009/10. The industry achieved a total GVP of 16.220 billion Birr (900 million USD).

The bakery and grain milling were the largest food industry sectors that together contributed about half (47%) of the total GVP. Flour (wheat), sugar, and biscuit were the largest processing subsectors, excluding drinks. There are 560 enterprises in the food manufacturing sector. These manufacturers provide 60,000 jobs. Most of the manufacturers are private (536). Grain millers and bakeries together account for 370 of the total number of industries.

Food processing is not only the largest but also one that offers top opportunities for investment. In fact, Ethiopia has huge potential for the further development of emerging food processing industry sectors such as cereals, pulses, oilseeds, fruits and vegetables, spices, coffee, tea, livestock and meat, poultry, and dairy. In addition, there are prospects for chain development and value addition in new sectors such as commercial intensive scale aquaculture and potato where processing is still non-existent (Amare, 2013).

Ethiopian manufacturer of food products	Public	Private	Total
Production, processing and preserving of meat, fruit and vegetables	2	8	10
Manufacture of vegetable and animal oils and fats	2	34	36
Manufacture of dairy products	0	34	34
Manufacture of grain mill products	9	136	172
Manufacture of prepared animal feeds	0	7	7
Manufacture of bakery products	2	194	196
Manufacture of sugar and sugar confectionery	3	18	21
Manufacture of macaroni and spaghetti	3	11	14
Manufacture of food products n.e.c.	1	11	12
Distilling, rectifying and blending of spirits	2	12	14
Manufacture of wines	2	0	2
Manufacture of malt liquors and malt	4	3	7
Manufacture of soft drinks & production of mineral waters	0	35	35
total	30	530	560

Source: Wagingen university research, 2011

Vertical integration: Several operators are downward integrated into the production of flour-based products, such as pasta and baked goods (bread and biscuits), in order to add value to the output of milling operations. An example is provided by Anbassa, part of the East African Holdings Group, which uses about 60 percent of its output to produce pasta. Downward integration is a logical way of adding value on while it may affect competition in downstream activities, it does not impact directly on competition in the flour industry.

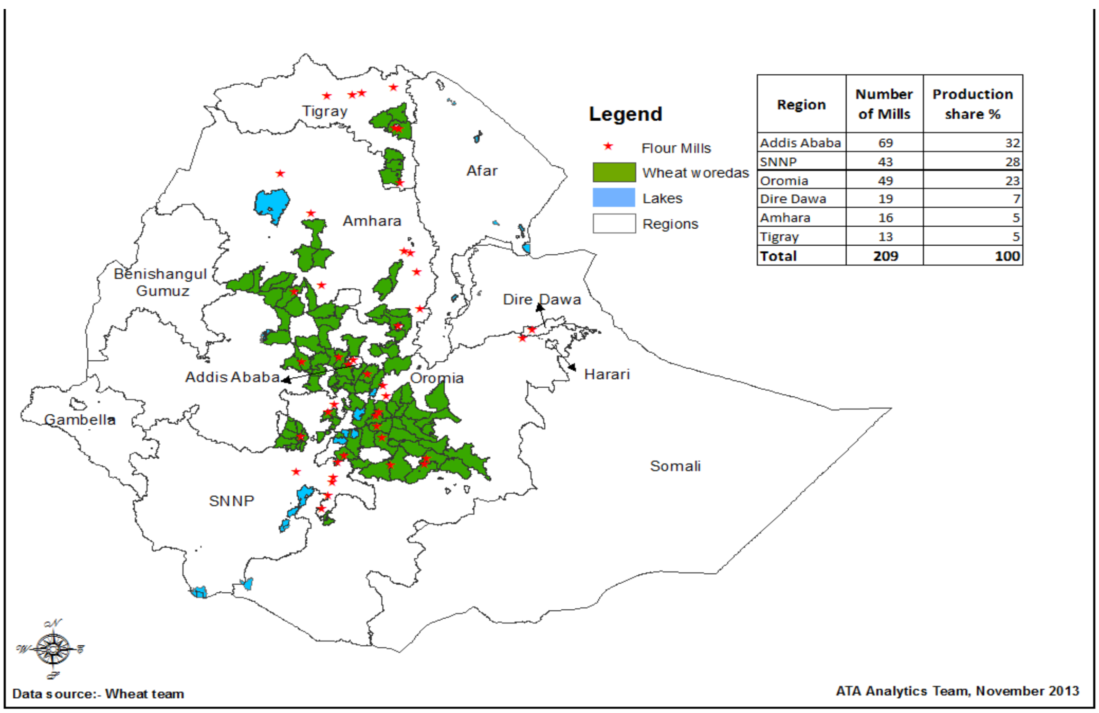
The most problematic issue faced by flour mills is access to raw materials. With a negative impact on production levels and, in certain cases, even with the closing down of activities. The problem is so severe, that members of the Flour and Flour Products Producers Association (FFPPA) have envisaged the establishment of a joint company,specifically tasked with the import and distribution of wheat. If ***implemented***, thisInitiative would increase the degree of vertical integration in the industry. However,as the initiative seems to be supported by a significant number of flour mills, thiswould not alter significantly competitive conditions (Roberto and Samuel, 2009).

2.2 Description of Ethiopian flour mills

2.2.1 Wheat millers in Ethiopia

There are about 200, mostly large scale, flour mills supplying the local market and pasta and biscuits factories, with average annual capacity of processing 2,300,000 MT of wheat and all operate at an average of 30% capacity (2013) due largely to lack of wheat supply. These millers form one of the most essential private sector partners as they provide the main demand sinks for wheat production. Also critical are the other actors within the trade pyramid, including aggregators who move product from farm-gate to demand centers, as well as the financial services, equipment and transport service providers who facilitate wheat production, transport, processing and sales (ATA, 2013).

Wheat districts with location of wheat flour mills in the country



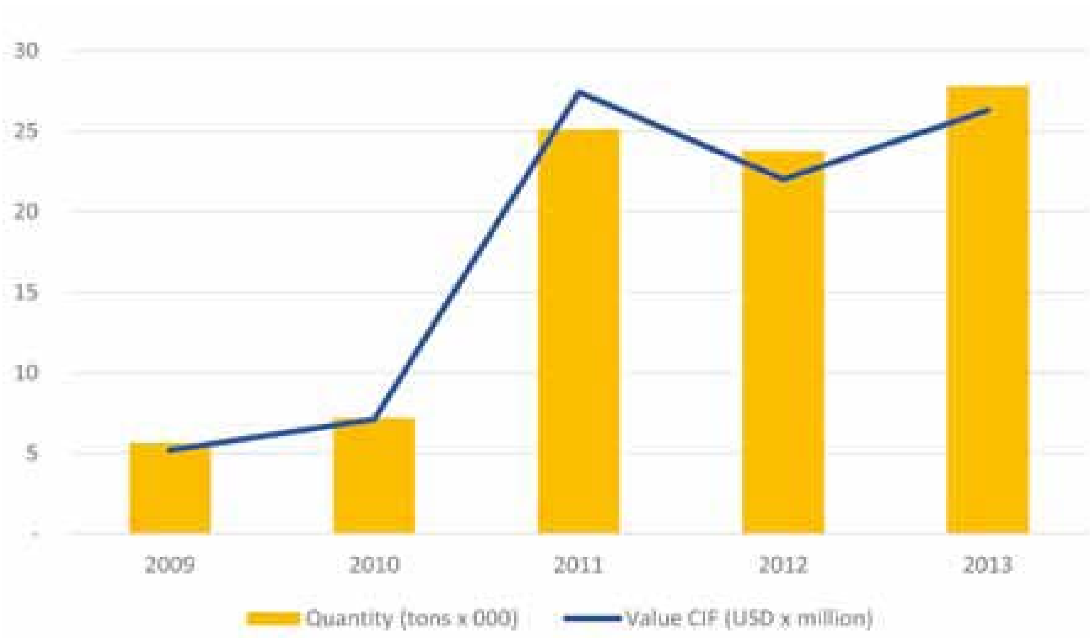
Region	Number of Mills	Production share %
Addis Ababa	69	32
SNNP	43	28
Oromia	49	23
Dire Dawa	19	7
Amhara	16	5
Tigray	13	5
Total	**209**	**100**

Source: ATA wheat team, 2013

2.2.2 Import

In addition to production the country also imports considerable amount of macaroni and pasta added to the domestic supply. For pasta, the largest volume originates from Turkey and Oman. The demand for macaroni and pasta is dependent on size of urban population and per capita income growth. Since both are increasing, the resulting effect will be a multiplicative(WUR, 2012).

Import of pasta in Ethiopia



Source: Ethiopian Revenues and Customs Authority (www.erca.gov.et/), 2013

2.2.3 PRODUCT DESCRIPTION AND APPLICATION

Pasta is a food product made by extruding and drying unleavened dough of wheat flour, and that forms the basis of much Italian cuisine, as well as Chinese, Japanese, Korean, and Southeast Asian cuisines. Macaroni is a dried food product made from semolina and shaped in the form of slender tubes. It is popularly believed that Marco Polo, the 13th Century Italian explorer, introduced pasta to Europe from China. Italian pastas, such as spaghetti and macaroni, are traditionally made from semolina flour derived from durum (extra – hard) wheat (Kellow, 2011).

Pasta may be added to soups; boiled and served with a sauce; served cold with other ingredients in a salad; stuffed with meat, cheese or vegetables and then boiled and baked. There are dozens of varieties of Italian pasta, and they are usually named for their sizes and shapes. Pasta is a highly nutritious food. A 56 – gram serving of pasta has less than 1 - gram of fat, no sodium, no cholesterol, and about 210 calories *(Nebil, 2012*).

2.2.4 Pricing, Distribution and level of competition

The market for food products is generally unstable, for Ethiopia as a whole. The figures for inflation, food prices, and Consumer Price Indices show tremendous negative impact on the financial situation of people in Ethiopia. Inflation has an immediate impact on buying behavior, which is a risk for investment in added-value products such as food that is processed more than minimally. Prices for pasta products vary for reason of inflation, availability of hard currencies and seasonality (varying from harvest period to shortage or no supply of raw materials). The current average retail prices of locally produced pasta and macaroni in the market is Birr 28,000 and 16,000 per ton allowing 35% marketing expenses and profit margin for wholesalers and retailers (Soethoudt, 2012).

There are many types of outlet at which pasta products can be bought. Unlike European countries, where supermarkets rule the supply chain, traders in the food supply chain in Ethiopia have significant market shareselling directly to consumers. The identified outlet types are:

- Supermarkets
- Consumer cooperatives
- Private commercial
- Kebele shops
- Etfruit shops
- Flour mills
- Regular shops
- Fruit and vegetable grocery shops
- Cereal shops
- Baltena shops

- Gulit (micro sellers)
- Kiosks

Source: WUR, The food processing sector in Ethiopia, 2012

Products are supplied to the market following the usual marketing chain, which begins at the factory gates and ends at the consumer's home. Within this chain, wholesalers and retailers serve as intermediaries between the factory and the shop, and between the shop and the customer's home, respectively. Nearly every food-processing industry in Ethiopia follows this supply chain. However, there are occasions when some factories circumvent the chain by supplying their products directly from their own retail shops. This mode of marketing is the exception rather than the rule, and the amount supplied this way is miniscule (Yaredand Groot, 2012).

Free market competition exists in the pasta industry. The existence of the import products may have some impact on the operation of the market.Entry barriers are a quite *capital intensive*business. Under these conditions, only large operators, with significant experience in the sector, could conceivably consider entering the market.

2.3 MATERIALS AND INPUTS

2.3.1 Wheat Production in Ethiopia

Wheat is one of Ethiopia's most important cereal crops by production. About 4.8 million farmers produce close to 3.42 million tons of wheat across 1.73 million hectares of land with average productivity of 2.1 t/ha (CSA, 2014).

Both Bread and durum wheat are widely grownin the country bread wheat still constitutes the vast majority of production and durum wheat with current estimated share of 40% is becoming increasingly more important, especially for processed products such as pasta and macaroni(CIMMYT, 2011).

Durum wheat was originated in the Abyssinian center of origin (Singh and Kota, 2007; Dvorak *et al.*, 2011).

The main wheat growing areas of Ethiopia are the highlands of the northwest, central and south-eastern parts of the country. In terms of regional contribution for wheat production, the largest volume of the main season production of wheat originates from Oromia (57.4%), followed by Amhara (27%). Wheat production in SNNP and Tigray also accounts for 8.7% and 6.2% of the national production, respectively. (CSA, 2013).

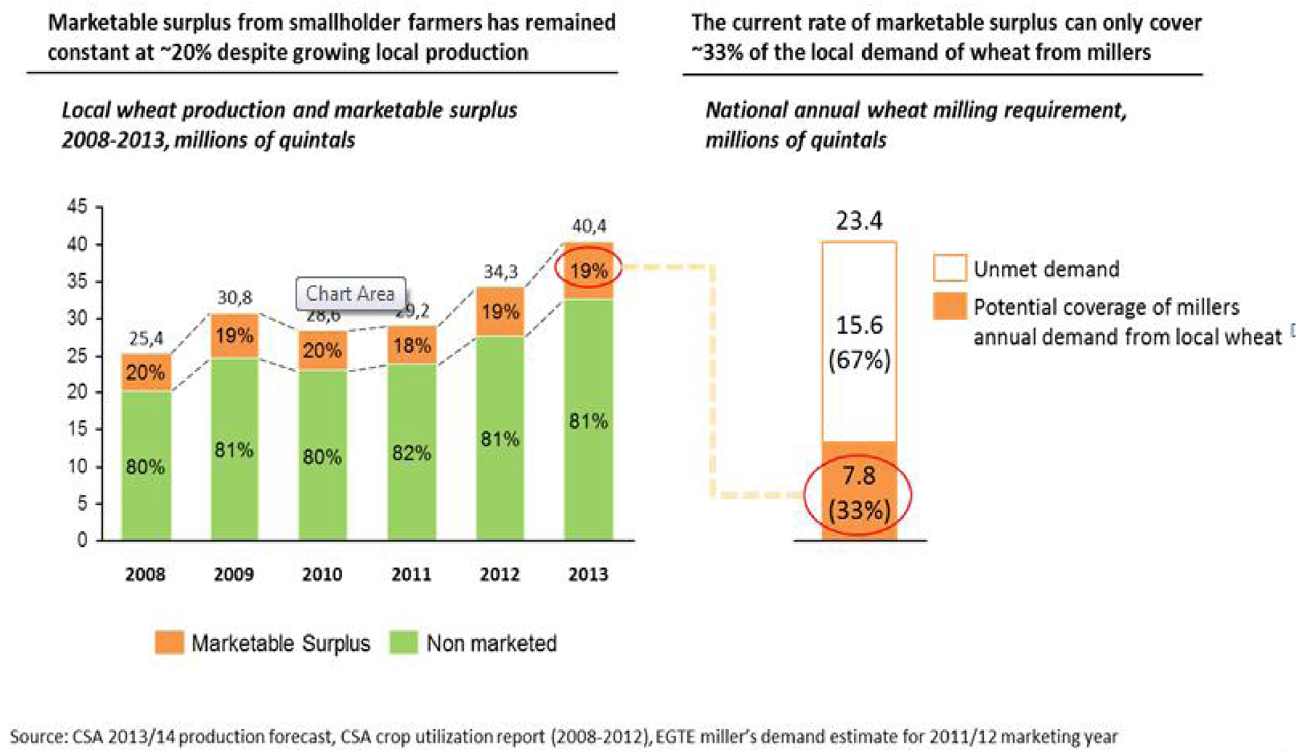
There are 16 major wheat producing zones in four wheat producing regions sharing more than three forth of the country wheat production:- eight zones from Oromia region (West Shewa, North Shewa, East Shewa, Arsi, Bale, South West Shewa, Horoguduro and West Arsi); six zones from Amhara region (North Gonder, South Gonder, South Wollo, North Shewa, East Gojjam and West Gojjam); South West Tigray zone from Tigray region and Hadiya zone from SNNPR region, each of which contribute a minimum of 2 percent in North Gonder zone and a maximum of 11.7 percent in Bale zone to the national wheat production (CSA, 2008).

2.3.2 Trade, Marketing and Demand

The average annual marketed wheat remained almost constant over the years ranging between 18% and 20% of total production and the larger volume of wheat produced (~58%) is used for home consumption.

The marketed volume of wheat covers only about 30% of the annual demand of the more than 200 mills found dispersed in the country, whose combined annual capacity exceeds 2.3 million tons (EGTE, 2011); some studies put this figure as high as 3.2 million tons (Abu, 2012).

Figure- Local Wheat Production and Marketable surplus vs. Millers Demand for Wheat



The net deficit in local production versus demand has necessitated imports in order to meet local demand and maintain price stabilization, between 2008 and 2012, share of imports from the total production of wheat accounted for 13% on average while the share from the total marketed wheat accounts up to 70% (Calculated using CSA annual production reports and EGTE reports).

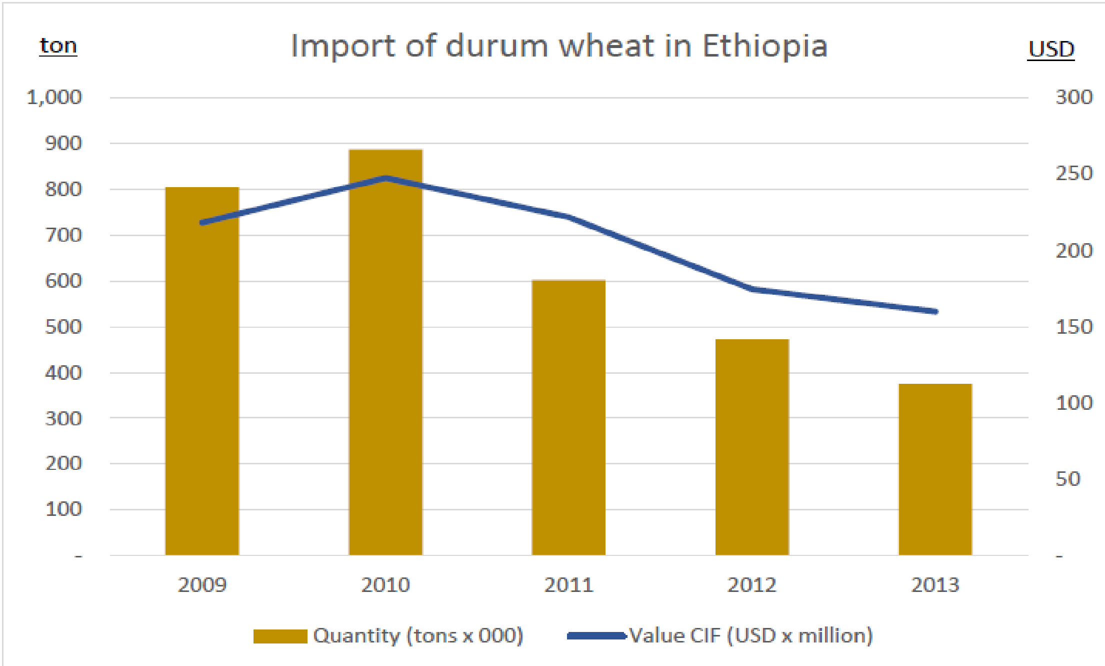
2.3.3 Raw Materials supply

The principal raw materials required for production of pasta/macaroni are semolina /durum. Semolina is one of the three different outputs of durum (extra hard) wheat obtained by milling. Water is an input used to shape the dough and then removed during the drying process in the oven. The durum wheat is very similar to bread wheat but differing in the larger, harder grains, higher protein content and different chromosome number. It is cultivated in relatively dry regions and harvested in the same way as wheat and other cereals Durum wheat has a very hard grain with a low gluten content, which makes it unsuitable for bread but ideal for pasta products. The wheat is milled in such a way that the grain is separated into bran, germ and semolina. Authentic pasta is simply durum semolina. Pasta can be found in dried (pasta secca) and fresh (pasta fresca) varieties depending on what the recipes call for. Concerning its nutritional value, durum wheat has a slightly lower food value than bread wheat (Hooley and Piercy, 2005).

Local pasta-makers buy huge and homogeneous amounts of durum wheat from abroad. This situation may seem quite paradoxical, because wheat is a very traditional crop in Ethiopia, with a sowing of over 1.6 million of hectares. The point is that the 3.5 million tons produced annually are nearly exclusively made of soft wheat, and not durum. Moreover, this production is provided by millions of small farmers through a complex net of intermediaries that aggregate the produce by volumes, and not by quality. As a consequence, industries have been forced to rely on import for durum wheat and therefore they have been affected by thehuge import costs and by the recurrent scarcity of hard currency in the Ethiopian bank system. But the internal demand of pasta is not yet fulfilled, so a huge importation of pasta is taking place (Chiari, 2014)

The development of durum wheat varieties with high yield, stem rust resistance and quality parameters is a formidable task for the national durum wheat improvement program. However, to be successful the durum industry has to be integrated within a well-developed value chain encompassing all aspects or grain production, marketing and utilization before real benefits will fowl to Ethiopian farmers

The country also imported durum wheat worth USD 246.6 million and 204.4 million in 2005/06 and 2006/07, respectively(MoFED, 2008).Ethiopian farmers, seed companies and cooperative organization engaged in durum wheat production have very conducive natural environment or ecologies to grow quality durum wheat beyond the current and ever growing need of agro industries. But due to a low volume of durum wheat production Local factories are obliged huge and expensive import of the required raw materials.



Source: Data from Ethiopian Revenues and Customs Authority (www.erca.gov.et)

The ever-increasing demand for durum wheat in both the global and domestic markets, and the availability of varieties developed from local and introduced germplasm meeting required quality standards or Ethiopian processors offer excellent opportunities for greater commercialization of the crop, thereby contributing towards reducing foreign currency expenditures required for durum imports (CIMMYT,2011).

2.4 Competition in the Food Manufacturing Industry

Competition can be defined in different ways depending on the structure of the industry and the environment in which a firm or firms operate. A competitive industry is one that requires no intervention to improve its performance; and a non-competitive industry is one that has some defect that should be corrected (Kotler & Keller, 2007).

The number of food processors and manufacturers is declining in many western countries such as in US due to mainly economies of scale, mergers, acquisitions and consolidations which would increase their market dominance. However, theaverage size of plants has been increasing. Such plants as flour mills, dairyprocessors, and poultry plants tend to specialize, while many of the large foodprocessors have been diversifying into many different farm products, nonfarm,and nonfood industries such as transportation, publishing, clothing, toys, & otherconsumer goods (Kohl & Uhl, 1996).

2.5 Marketing Strategies of the Food Processing Firms

Food processing or food manufacturing firms are mainly engaged in adding form utility to the unprocessed agricultural products. Due to increasing competitions and demanding consumers for better food products, food processing firms have been forced to adopt marketing strategies that has been confined to other industries. Food manufacturing firms practice market segmentation, product differentiation, and positioning of their value-added, branded products in order tosucceed in the market (Kohl and Uhl, 1996).

Food manufacturing firms employ different competitive marketing strategies in satisfying customers' needs and wants more than their competitors. These marketing strategies revolve around the four marketing mix elements i.e. product, price, place (distribution), and promotion strategies. The Food and Agricultural Organization (FAO, 2007) puts the marketing mix as parts of core strategy that an organization uses to create a preference for its products and services in the market place.

Product Strategies deal with such matters as number and diversity of products, product innovations, product scope, and product design (Jain, 2000). Product strategies in food processors incorporate such aspects of product bundles as quality, convenience, packaging, nutrition, innovations, or even price as the key marketing idea (Kohl and Uhl, 2006). Branding is the most important product strategy of food processors that can earn them brand loyalty or a consumer-franchise from customers thus contributing to market dominance and better performance. Product strategy, among other things, varies depending on the life cycle of a new food product.

Pricing Strategies depend on whether a product is new or existing one. If a new product is introduced, the pricing strategy can be skimming or penetration pricing. On the other hand if a product is an existing one, the pricing strategy can be maintaining the price, reducing the price or increasing the price. In both cases pricing decisions are affected by such factors as pricing objectives, cost, competition, and demand for a product (Kotler, 2007). A variety of approaches may be taken to pricing including cost based, demand based, competitors based, and market based (FAO, 2007). Food processors may use a gourmet strategy – with a high quality price mix, while other may use a value pricing strategy with lower price and quality appeal. Food manufacturers may also adopt price discounts and psychological pricing strategies to attract consumers (Philip & Garry, 2007).

Distribution Strategies are concerned with the channels a firm may employ to make its goods and services available to customers. Channels are organized structures of buyers and sellers that bridge the gap of time and space between the manufacturer and the customer (Jain, 2002, p. 445). Distribution strategies for food processors include selling through conventional food stores, selling food in nonfood stores, selling to the foodservices market, selling in vending machines, mail or catalog selling, home delivery, and even selling doo-to-door by high school or scouting organization. Many food processors operate their own sales offices, warehouses, and professional sales forces (Richard and Wilson, 2005).

Promotion Strategies are concerned with planning, implementing, and control of persuasive communication with customers that may be designed around 23 advertising, personal selling, sales promotion, and any combination of these (Jan, 2000). Food manufacturers have many choices to make here in selecting the goal of the promotion (to remind, inform, or persuade); the theme or appeal (price, quality, etc.) of the promotion; the types of promotion (advertisement, sales promotion, personal selling, publicity); which media (print, broadcast, direct mail, point-of-purchase, etc.) will carry the promotion; and who the promotion will be targeted to (the user, the buyer, or the influencer) (Kohl and Uhl, 2002).

2.6 Measures of Market Performances

There are many approaches to measure market performances of firms. One way of measuring the performance the food marketing system is whether the film isachieving its goals of satisfying the requirements of the various participants suchas consumers, food manufacturing firms, farmers, and the society (Kohl and Uhl, 2002). They further argued that efficiency which is a ratio of output to inputis the most frequently used measure of market performance as it can improve acommon goal of farmers, food marketing firms, consumers and society. Operational efficiency is a situation where the costs of marketing are reducedwithout affecting the marketing outputs. It is usually measured by laborproductivity or output per labor-hour (Kohls and Uhl, 2002).One way of measuring efficiency for an industry or a firm is thecapacity utilization rate which shows the extent to which productive capacity isbeing realized in practice (Jacobson, 2006).

2.7 Research Gap

Ethiopia has great potential from the point of view of resources, efficient utilization of resource was challenging in developing countries as well as Ethiopia. So far many studies had been carried out in our country on the general food processing sector. As a result they indicated few opportunities and challenges of sub sector (Pasta processors). Hence possible challenges and opportunities were not identified sufficiently. Because there is no specific research done related to this topic in Ethiopia. Thus, in this study, those challenges and opportunities that can influence the durum wheat value chain in general and pasta processing firm in particular were recognized.

The review of literature made so far reveals that the pasta producers in Ethiopia can be characterized by:

a. Low competitiveness in the industry
b. Low labor productivity and profitability
c. Backward production technology
d. Poor quality of products
e. Low level of contribution to GDP
f. Lack of market development efforts and innovation in the food industry

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a very essential part of the study and used as framework to accomplish this research. This research was descriptive study and survey strategy was mainly utilized. Therefore, methods which were applied at the time of conducting the study was briefly explain in this section.

3.2 Research Approach and Method

This study used both quantitative and qualitative approaches. In the course of analyzing the problems, both primary and secondary data collection procedures were employed. To achieve this goal, questionnaires, interviews and document reviews were going to be the main tools both quantitative and qualitative approach designed to investigate the problem under study. Employing mixed approach used to neutralize the biases of applying any of the single approach (Creswell, 2003).

3.3 Source of Data

Primary and secondary data were collected from different sources.

3.3.1 Primary data source:

Primary data were the main input for this research in order to undertake it effectively. Primary data were obtained from questionnaire and interviews. The primary data were collected from 14 pasta making firms, 6 cooperative heads and 10 EIAR/DZARC researchers and value chain experts through structured questionnaires and semi-structured interviews respectively.

3.3.2 Secondary Sources of data:

Relevant secondary data were collected from CSA reports, ERCA official website, manuals and seminars/workshop proceeding on Ethiopian pasta industries. This is because secondary research has validated the research and support to justify the reasons and findings. Secondary data issued first to conduct the research before conducting primary data .this is done because secondary data may contain information that is essential for conducting this research and used to find appropriate solidify premises of the study.

3.4 Population of the study

Any items in any field of inquiry constitute a ‘Universe’ or ‘Population. A complete enumeration of all items in the ‘population’ is known as census inquiry. It can presume that in such an inquiry, when all items are covered, no element of chance is left and highest accuracy is obtained (Kotheri, 2004).

According to information obtained from Ministry of trade and industry, there were 20 different companies engaged in the pasta making business all of them are local producers and were taken as target group.

3.5 Sampling techniques and procedure

It is often impossible, impractical, or too expensive to collect data from all the potential units of analysis included in the research problem. Thus, a smaller number of units, a sample, are often chosen to represent the relevant attributes of the whole set of population. The researcher took the sample from each unit of research participants. To choose the ten EIAR/DZARC researchers and value chain expert, and six head of grain producing cooperatives for interview judgmental sampling techniques were adopted. However, in this study since the population was small ($N \leq 25$) in numbers the researcher took the entire population as a sample for study and to complete the questionnaire.

3.6 Sample size determination

One of the most common questions any researcher gets asked is “How large a sample size do I need?” Researchers are often surprised to find out that the answer depends on a number of factors and they have to give the statistician some information before they can get an answer (Kothari, 1995).

When dealing with large populations, the sample size is determined using the normal approximation to the binomial distribution. This approximation is very accurate when the population is large. However, if you were to sample a population of 20 individuals, then for a given accuracy, you would require a far smaller sample. Hence, in this study the researcher took all unit of population (N=20).

3.7 Method of data collection

Quantitative and qualitative data were collected to attain the objectives of the study. To collect these quantitative and qualitative data different methods of data collection were used including questionnaire and interview methods

3.7.1 Questionnaires

Both close-ended and open-ended questionnaires were developed and employed for collecting primary data from several pasta making firms. It enables the firms to explain their problems or challenges and opportunities encounter while doing their business. Questionnaires developed after conducting an extensive review of literature in pasta and principal raw material area, and it was pretested through telephone by discussing with local pasta makers employees. It is containing open and closed –ended question items.

3.7.2 Interviews

Semi structured questions were developed and interviews were held with 16 durum wheat researchers, experts and durum wheat grain producing cooperatives. The reason behind selecting this particular method of data collection is that head of grain producing cooperatives and researchers that have exposure to the industry are likely to be able to elaborate on opportunities and challenges of the sector.

3.8 Validity and reliability of the instrument

Content validity: - is the extent to which a measuring instrument provides adequate coverage of the topic under study. If the instrument contains a representative sample of the universe, the content validity is good. Its determination is primarily judgmental and intuitive. It can also be determined by using a panel of persons who shall judge how well the measuring instrument meets the standards, but there is no numerical way to express it (Kothari, 2004). In this study since, all population were employed as sample (n=N) the content validity is good.

Reliability: - is a measure of how stable, dependable, trustworthy and consistent a test is in measuring the same thing each time (Worthen, 1993). In this study the researcher used Kuder-Richardson coefficient alpha to test the reliability of the study. Alpha value range from 0.00 to 1.00 (sometimes expressed as 0 to 100) with high values indicating a desirable characteristic (Worthen, 1993).

Kuder-Richardson’s coefficient alpha value generated from the computer program of SPSS was 0.71 or higher, indicate acceptable level of internal consistency among the items involved. The reliability test, questionnaire and interview protocol are attached in appendix.

3.9 Method of data analysis

The data which is collected from primary sources were validated, edited, coded, and entered into SPSS 21 and Microsoft Excel computer software program and checked for consistency and completeness, and analyzed. The results presented in graphical forms, tables, and charts, using appropriate statistical tools. The collected data was analyzed and interpreted by using both qualitative and quantitative techniques. The data collected by open ended questionnaires and interview questions were analyzed qualitatively. Closed ended questionnaires were analyzed quantitatively by using figures, tables, and percentages computations.

3.9.1 Quantitative data analysis

The data collected was analyzed using descriptive statistics so as to see whether the research objectives are met or not. Through the analyzing process, quantitative description, frequencies, percentage, mean and standard deviation (STD) was applied.

3.9.2 Qualitative data analysis

To analyze the data gathered from semi-structured interview, Force Field qualitative Analysis method was employed to identify business performance of the organization. Moreover, it is also used to assess the opportunities and challenges of pasta producers and check the consistency of the survey results.

3.10 Ethical consideration

Sometimes the researchers undertake research without telling the truth about the purpose and nature of the research. In addition, sometimes respondents mislead about the reality of the study because of fearing of lack of confidentiality. The participants in the study were briefed about the purpose and nature of the research study by the enumerators. In relation to this, the participants were asked for their informed consent to participate in the study. To make the participant free from stress or anxiety the issue of confidentiality was promised for the information that they provide.

CHAPTER FOUR

RESULT AND DISCUSSION

4.1 Introduction

This section deals with the result and discussion of data obtained from primary and secondary sources.

The questionnaire was distributed to twenty (N=20) pasta making firms, which are located in different parts of Ethiopia. Among these 14 (70%) were kind enough to fill the questionnaires properly and return them on time. The rest 6 (30%) failed to complete and return the questionnaires. All the returned questionnaires were completed and considered for the analysis.

Interviews were held with 16 key informants (ten from durum wheat researchers/experts and 6 from head of agricultural cooperative). So, based on the plan interviews were successfully carried out and considered for the analysis.

Thus, in this chapter the information gathered from the respondents analyzed and presented in the following section in details.

4.2 Results of the study

4.2.1 Background of the companies and respondents

The first part of the questionnaire consists of the background information of the companies and the respondents, which represent the different pasta making companies and members of EMA in Ethiopia.

Accordingly, the variables collected from the respondents, described and summarized in the subsequent sections in table and figures. These variables include form of ownership, level of education, firm's size, factory location by region and the current position of the respondents in the company.

Table 1 .Profile of sample pasta manufacturing companies

Descriptions of Respondents Response	**Response**	
	Number	Percentage
1) Form of ownership		
PLC	11	79 %
JV	1	7%
SC	2	14%
Other	0	0%
Total	14	100%
2) Past processing plants by size		
Large	4	29%
Medium	10	71%
Small	0	0%
Total	14	100%
3) Respondent position		
GM	2	14%
Middle Manager	9	64%
Senior Staff	3	22%
Total	14	100%
4) **Level of education**		
Certificate	0	0%
Diploma	4	29%
1st degree	8	57%
MSc/MA	2	14%
PhD	0	0%
Total	14	100%
5**) Location of company**		
AA	7	50%
Oromia	4	29%
Amhara	0	0%
Tigraye	0	0%
SNNP	1	7%
DD	1	7%
Harari	1	7%
Total	14	100%

As indicated in the Table1, among 14 sample companies, 79% were PLC, 14% were Share companies and remaining 7% (N=1) was joint venture with east Africa tiger brands. Thus, almost all local pasta making companies, which are the member of Ethiopian milling association (EMA), are mainly owned and managed by private sector.

Respondents were asked the size of their company. About 71% of respondents were reported that the industry is dominated by Medium size companies, the rest 29%respondents were large size. No one reported that they had small firms. With respect to the position of the respondents, 64% were fall in middle managers and the lowest numbers fall in general manager and senior staff.

When we saw the level of education, 57% of the respondents were 1st degree holders and 29 % respondents were diploma, and the remaining 14% were second degree holders. Here, we can conclude that all the respondents are educated and at least they had diploma.

4.2.2 Location of processing companies

In this part of the Questionnaire, the respondents requested the location of the firm, why they select the location and what are the main factors they consider while they were selecting the location for processing pasta products.

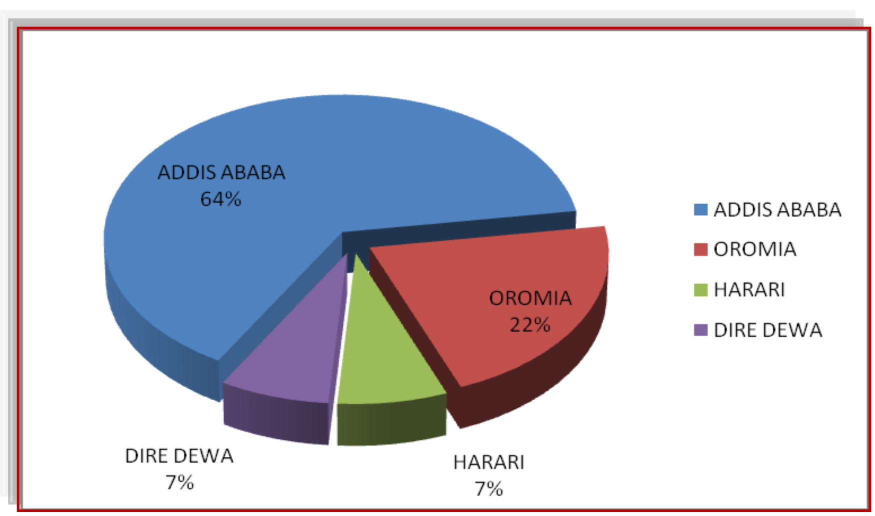


Figure 1. Regional distribution of sample companies

Figure 1 indicates that among 14 companies,64 % were located in Addis Ababa, followed by Oromia 22%, and others located in Dire Dewa and Harari. Hence, most of the durum wheat processing factories are concentrated in Addis Ababa and surroundings Oromia region.

Table 2. Factors considered by pasta factories for selection of processing site

Descriptive statistics					
	N	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
Availability of raw materials	14	3	4	3.5	0.640
Infrastructure	14	2	4	3.0	0.535
Availability of labor force	14	2	4	2.9	0.799
Proximity to market	14	4	5	4.4	0.632
Service availability	14	3	4	2.9	0.458
Valid N (list wise)	14				

As per the mean value in Table 2 clearly indicates, proximity to market and availability of raw material are the major factors that are commonly considered to determine the location of the plant and infrastructures are also among important factors for the selection of factory location.

4.2.3 Raw material supply

In this section the respondents requested, what raw materials the company used, their availability and source, from where they buy and what factors should be considered to buy the principal raw materials (Durum wheat) for their pasta products.

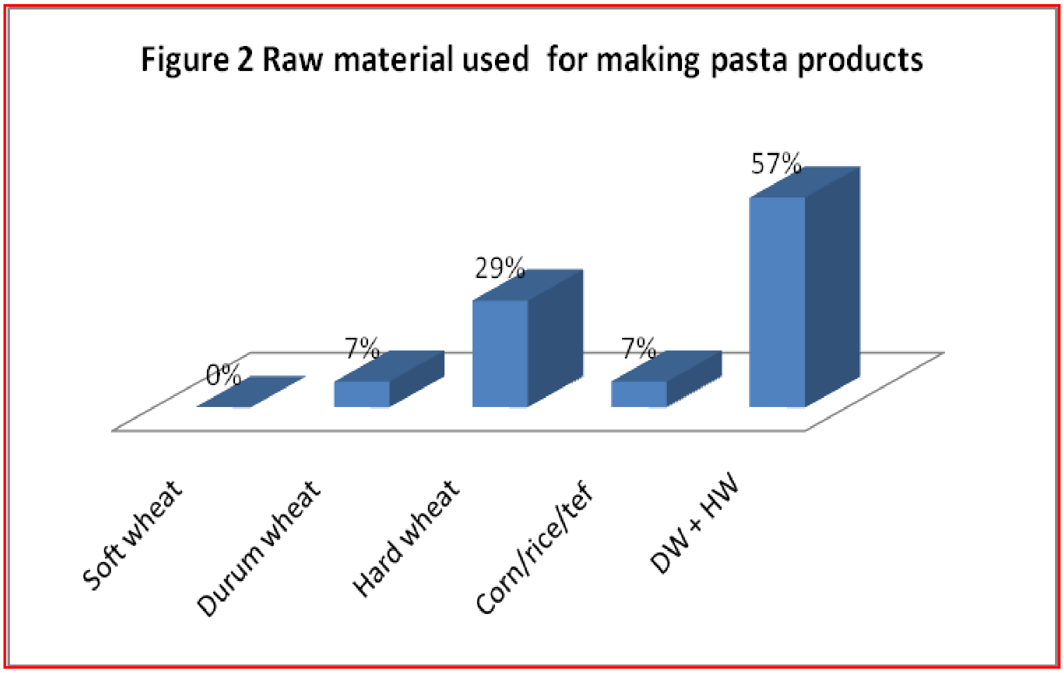


Figure 2 Raw material used for making pasta products

Source: Field Survey, 2015

As figure 2 illustrate 57% of the respondents produce pasta products from a combination of Durum and hard wheat, 29 % respondents produce their products mainly from hard wheat and the remaining one respondents adjust their milling to durum flour / semolina.

Table 3: Major source of durum wheat supply

Source of wheat	N	Percent
Domestic market only	6	43%
Foreign market only	0	-
A mix of both market	8	57%
Total 14		100%

As table 3 depicts, 57% of the pasta makers were bought huge and homogeneous amounts from both local and foreign market. 43% replied that, they mainly depend on local markets for their raw material requirements.

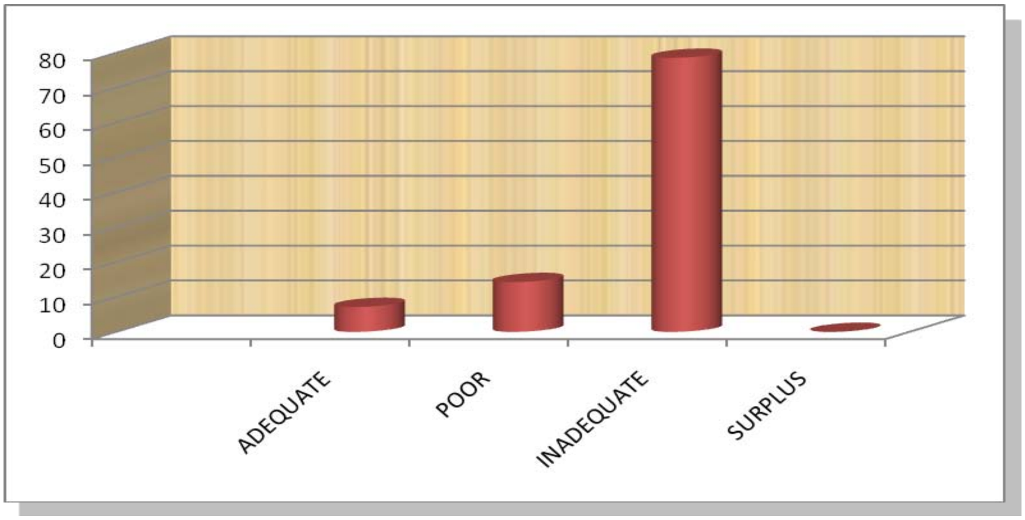
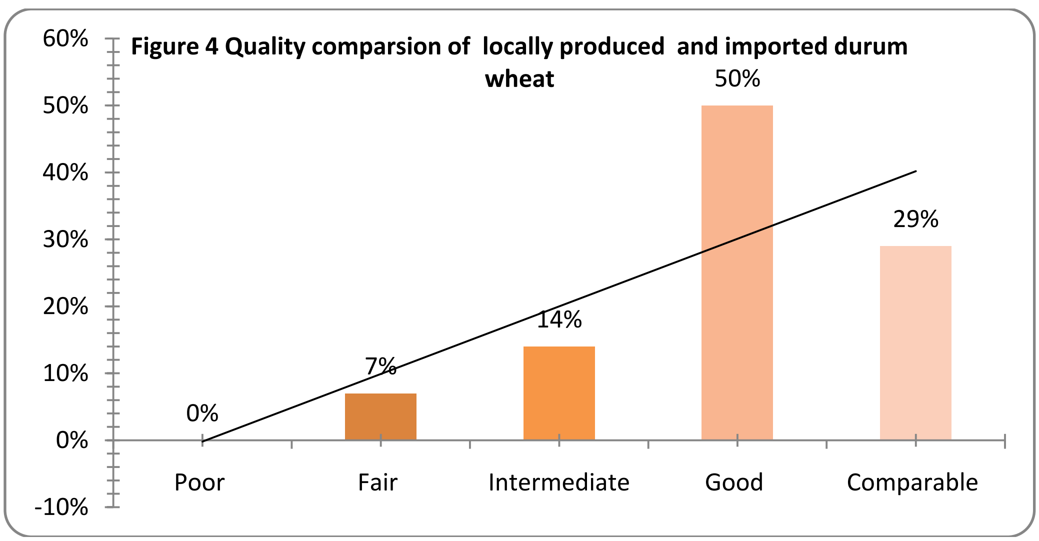


Figure3 durum wheat grain availability in the local market

As clearly shown from the above graph (figure 3), about 79% of the respondents agreed with the inadequate supply of locally produced durum wheat in the country. Therefore, pasta producers forced to incur huge amount of money for importing durum wheat.



Source: Field Survey, 2015

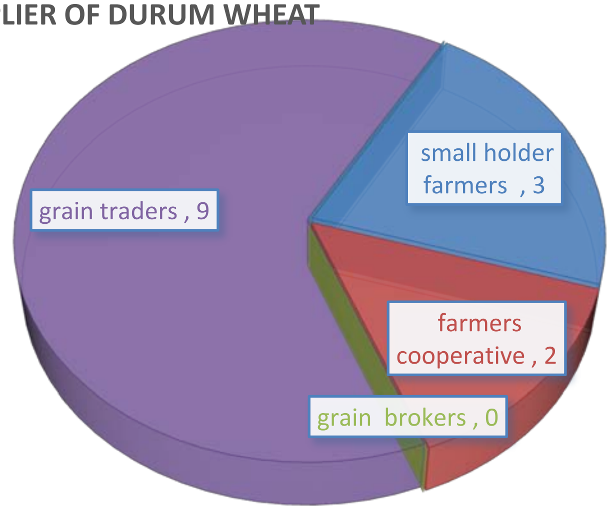
Based on figure 4, 50% of the respondents were said locally produced durum wheat is good in quality as compared to imported durum wheat, 29% of the respondents agreed that there is comparable quality between local and imported durum wheat.

Table 4 durum wheat quality requirements for making pasta products

Important durum wheat quality factors	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Protein	14	4	5	4.8	0.4140
Gluten strength	14	3	4	3.5	0.5164
Falling number	14	2	4	2.3	0.5936
Impurity	14	2	4	3.0	0.8452
Moisture	14	2	3	2.6	0.4140
color	14	2	4	2.7	0.7988
valid N (list wise)	14				

As presented in Table 4, Protein content continues to be a fundamental requirement to ensure good pasta cooking quality (**μ=4.8 and σ=0.4140**). Quality factors such as gluten strength, impurity and color have priorities for the respondents.

FIGURE 5 MAIN SUPPLIER OF DURUM WHEAT



Source: Field Survey, 2015

Based on the survey result 64% of the respondents revealed that locally produced durum wheat with the required quality supplied to pasta industry through grain traders, 22% factories obtained principal raw materials directly from smallholders. And remaining 14% supply is coming from farmer's cooperatives or union (figure 5)

4.2.4 Market strategy and Distribution system

The most crucial activity of the business is the selection of target markets or the identification of the products to whom produced. As the table 5 shows, 57.2% of the respondents target their products to mass market of any age group. 35.7% of the respondents replied hotels, restaurants and cafeterias are the main destination for their pasta products whereas the rest of 7.1% of the respondent generate revenue from foreign market via exporting to neighboring countries.

Table 5. General information on customer group, grand strategy and demand for pasta

Who are the company's major customer groups	N	**Percent**
Business organization (hotel, cafeteria, restaurant etc.)	5	**35.7%**
Mass market	9	**57.2%**
Foreign market	1	**7.1%**
Total	14	**100%**
What is the company's overall business strategy?		
Low cost	6	**42.9%**
Differentiation	4	**28.6%**
Focus (niches)	2	**14.3%**
A combination	2	**14.3%**
Total	14	**100.0%**
Where is your current key market?		
Addis and its surroundings	11	**78.6%**
Regional	3	**21.4%**
International market	0	**0.0%**
Total	14	**100.0%**
How do you rate the demand for pasta (spaghetti and Macaroni) in the domestic market		
Growing demand	14	**100%**
Latent demand	0	**0.0%**
Declining demand	0	**0.0%**
Static demand	0	**0.0%**
Total	14	**100%**

When we saw the generic strategy, 42.9% were adopting the low cost strategy, 28.6% of the respondents were pursuing differentiation and remaining 14.3% respondents said they adopted focus and combination two or more strategies. Thus, the majority of pasta making firms strives to be low cost operator and this strategy allows the firms to offer standardized product with affordable price and give competitive advantage in the food industries.

Firms in this regard may take a defensive or offence measures against their rivals depending on the structure of the industry and its competition. Pricing and promotions, among other things, are the major tools of marketing strategies that influence performances of a firm in an industry

As table 6 depicts, 78.6% of the respondents said, the key market for their product is Addis Ababa and its surrounding oromia region and followed by regional 21.4%. Thus, all past making firms generate revenue only from local market.

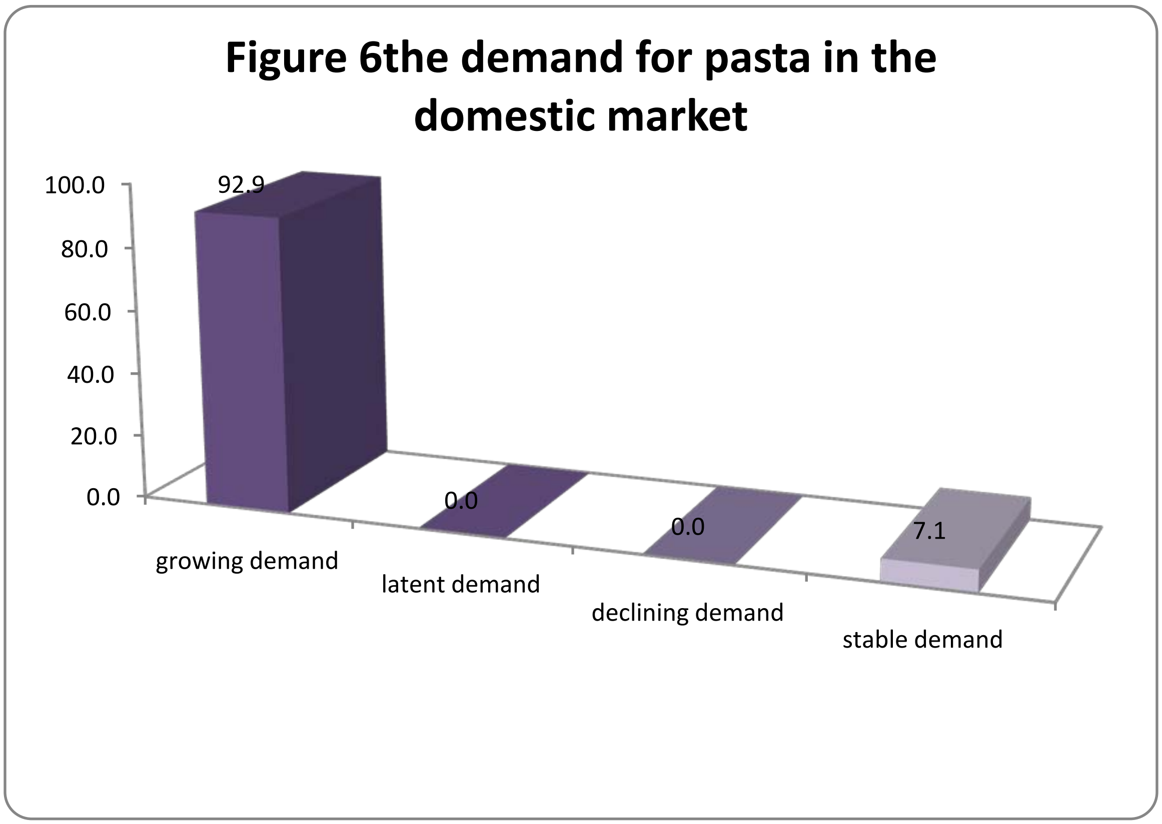


Figure 6 depicts that, 92.9% respondents were agree the demand for pasta is growing in the domestic market faster than for any food staff, so ever increasing amount of durum wheat grain are needed.

Table 6 Distribution channels commonly used by pasta making companies

Types of outlet	*N*	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
Wholesalers	*14*	*3*	*4*	*3.9*	*0.3519*
Retailers	*14*	*3*	*4*	*3.3*	*0.4577*
Consumer cooperatives	*14*	*1*	*2*	*1.5*	*0.5164*
Manufacturer sales branch	*14*	*1*	*3*	*2.0*	*0.7559*
Supermarket	*14*	*3*	*4*	*3.3*	*0.4577*
Valid N (list wise)	*14*				

The above table revealed that, pasta industry utilizes the existing network of wholesalers ((**μ=3.9 σ=0.3519)** and retailers (**μ=3.3 and σ=0.4577**) for its distribution which include supermarkets, manufacturing sales branches and consumer cooperatives. Thus, durum wheat Processors sell their products through these channels. Factory products are supplied to the market following the usual marketing chain, which begins at the factory gates and ends at the consumer's home.

4.2.5 Structure of Pasta Producing Firms

Pasta products are very popular in Ethiopia, locally produced and also imported. Quality Pasta imported from Italy and Turkey is expensive for the mass to afford. Hence, local producer cater for the mass market.

Table 7 Domestic Production & Import of Pasta (TONS)

Year	production (Tons)	Rate of growth (%)	import (Tons)	total supply
2010	35,372		2,782	38,154
2011	38908	10.00	3,158	42,066
2012	37,079	-4.70	5,655.60	42,735
2013	28151	-24.08	7,201.80	35,353
2014	43,670	55.13	25,750.00	69,420
	Percent share=63%	Average rate= 9.09%	Percent share=37%	Rate =22.7%

Source: ERCA and CSA, 2014

As indicated on Table 7 above, the total production and import supplied to the market were about 69,420 tons. Demand for pasta growing at an average rate of 22.7% per annual. About 63 % (43,670 tons) of the market however had been supplied by local producers with an average yearly growth rate of 9.09 **%.** However, its growth rate varied from year to year depending on the availability of raw materials and hard currencies.

There are also some Traders that import products from European & Gulf countries. According to opinions of the general managers of pasta and macaroni producing firms, the qualities of the locally produced macaroni and spaghetti are inferior compared to the imported mainly because of poor quality of wheat flour i.e. lack of sufficient durum Wheat in the country.

The above tables also show that, the gross value of local production (GVP) is 655.05 million birr.

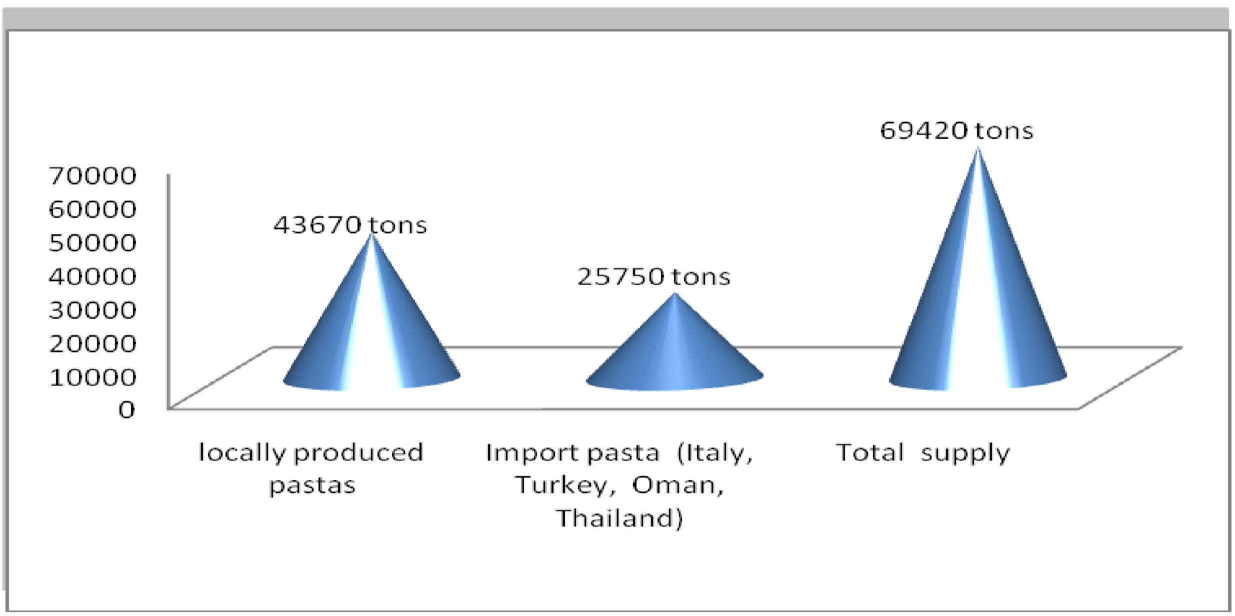


Figure 7 Pasta production Import and total supply (ERCA and CSA, 2014)

DireDawa Food Complex, East African Holdings (South African company) and kality food Share Company are the leading manufacturers in the pasta industry with their known local brands such as Vera Pasta, Mon dial & Bravo pasta, Bella pasta& Cereralia respectively

MAIN SOURCING MARKET FOR PASTA				
Locally produced pastas			Imported pasta	
leading Manufacturer	Dire Dawa, and East Africa Holding, Kality Food sh.		leading importer	YSO and Sons General Trading Plc. &shoa
Typical Local brand	Vera Pasta, Bella pasta, Cereralia, Mon dial Pasta, Bravo pasta etc.		Typical brand	Indomie, Telltale etc.
Price positioning	Relatively inexpensive		Price positioning	Expensive
Quality	Good to Inferior		Quality	Good
No of plants	20		Importing countries	Italy, Turkey, Oman, Thailand)
Main target market	Mainly mass market		Main target market	Niche market
Total production	43,670 tons		Total import	25750 tons

Table 8 Ethiopian pasta industry (ERCA and CSA, 2014)

In terms of quality, pasta imported from Italy and Turkey is good. Therefore, the importer charges the consumer relatively higher price, unlike imported pasta which target niche market, the local produces dominated the mass market with affordable prices. The above table (8) presents**,** YSO and Sons General Trading PLC and Shoa are the leading importer of past products from Italy, Turkey, Oman and Thailand.

4.2.5.1 Barrier to Entry

DESCRIPTIVE STATISTICS					
Barrier to Entry	*N*	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
Capital requirements	*14*	*1*	*5*	4.07	1.07
skilled man power	*14*	*1*	*2*	1.57	0.51
availability of quality wheat	*14*	*2*	*5*	3.07	1.07
effect of branding	*14*	*0*	*1*	0.29	0.47
effect of advertisement	*14*	*1*	*1*	0.29	0.47
Valid N (list wise)	*14*				

Table 9 barrier that significantly affects entry in the pasta business

According to the above table 9, the highest mean scored by capital requirements (μ=4.07 and σ=1.07) followed by availability of quality wheat and skilled manpower respectively. The above able also revealed that the effects of branding and advertisements (μ=0.29 and σ=0.47) have not yet created any significant barriers to entry as these products can be easily substitutable.

4.2.5.2 Product Differentiation and basis of Competition

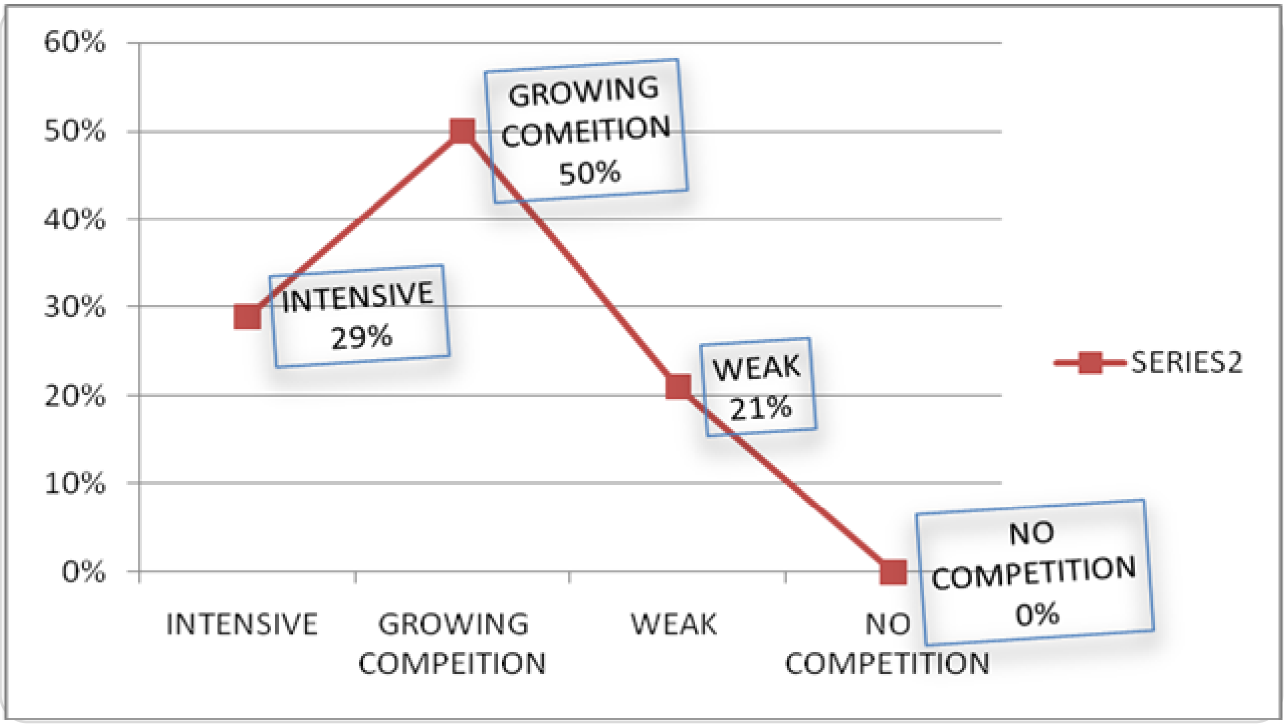
The above table 10 indicated that, the basis of product differentiation such as Packaging, color, shape and design, and product taste of pasta and macaroni are very much similar (μ=0.00). Which prove the sector's poor market innovation and creativity. The above table also shows, competition in the pasta industry is still based mainly on price. (**μ=4.43**) followed by branding (μ=1.71).

Table 10 basis for product Differentiation and competition

Descriptive statistics					
Product Differentiation	*N*	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
product taste	*14*	*1*	*4*	0.00	0.000
color	*14*	*0*	*2*	0.00	0.000
ingredient	*14*	*1*	*3*	1.71	0.469
Shape and design	*14*	*0*	*1*	0.00	0.914
packaging	*14*	*0*	*1*	0.00	0.000
quality	*14*	*1*	*4*	2.21	0.802
Valid N (list wise)	*14*				
Descriptive statistics					
competition in the industry based mainly	*N*	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
Branding	*14*	*1*	*4*	1.71	0.994
packaging,	*14*	*0*	*1*	0.07	0.267
Advertisements	*14*	*0*	*1*	0.50	0.519
Price	*14*	*2*	*5*	4.43	0.938
Valid N (list wise)	*14*				

4.2.5.3 Competition

As per figure 8 below, 50% of respondents replied, competition among pasta firms is characterized by growing competition. 29% replied completion was so intense. Out of 14 respondents 21% agree that the competition inthe industry is weak



. Figure 8 shows level of competition among pasta manufacturing

4.2.6 Prospects and Challenges of Pasta industries

To collect more information on opportunities and challenges of Ethiopian pasta industries, problem or challenges and opportunities related questions, were also forwarded to all 14 respondents. Accordingly, the Responses to the question are depicted briefly in table 11 as follows.

Table 11 problems and opportunities respondent faced in the pasta industry

Problems/ challenges	Response	F (%)	Opportunities	Response	F (%)
Low supply of durum wheat in the country.	13	93%	Unsatisfied demand (demand > local production)	12	86%
Scarcity of hard currency	8	57%	Huge population(huge market potential)	14	100%
Globalization and increasing competition in the pasta industry	6	43%	The presence of pasta on the table of families is considerably increasing.	10	71%
Ineffective marketing linkage among key stakeholders in the value chain.	14	100%	Rapid urbanization where citizen adapting new life style	14	100%
Demands higher level of technologies, capital, and skilled manpower.	9	64%	Increasing or growing domestic demand for pasta.	14	100%
Lack of market information and intelligence.	7	50%	Export market potential	9	64%
Shortage of expertise in the pasta industry,	5	36%	Incentive packages:	5	36%
Frequent interruption of electric power.	12	86%			
Increasing cost of raw material and logistics	11	79%			
Unreliable climatic condition	6	43%			
Seasonality consumption of pasta.	6	43%			
Consumer taste and preference change over time	4	29%			
Capacity underutilization	14	100%			
Lack of market	2	14.3%			

4.2.6.1Challenges of Pasta Factories

In Ethiopian pasta industry is evolving but not to the level of its potential mainly due to various challenges/problems. Table, 11 reveals that 93 % of the factories were faced low supply of durum wheat in the local market; all respondents agreed that the marketing linkage between key stakeholders found to be ineffective that may contributes to the low supply of durum wheat to the factories.

According to this study, another important challenges or problems given by 100% and 86% of factories were lack of efficient utilization of capacity and frequent interruption of electric power respectively. As a result, firms' productivity, efficiency and daily operation was affected. About 79%, and 57 % of factories faced Increasing cost of raw material and logistics and lack of hard currencies.

Table 11 indicates that, 50%, 46%, 36%, 29% pasta factories faced lack of market information and intelligence, unreliable climatic condition, seasonality consumption of pasta, globalization and increasing competition),Shortage of expertise in the pasta industry and Consumer taste and preference change over time respectively. Only 14.3% respondents reported that there was a market problem for their products.

4.2.6.2 Prospects of Pasta Factories

For the purpose of this study, pasta factories were asked the opportunities that they have for being a manufactures. Table 11 reveals that, 100% factories pointed out huge population, increasing or growing domestic demand for pasta, rapid urbanization where citizen adapting new life was a key promising opportunities that makes the future of pasta more bright.

About 86% factories described that there was unsatisfied demand (demand > local production) that gives an opportunity to enhance domestic production. About 71% and 36% of the respondents stated that, the presence and increasing of pasta on the table of families and the incentive packages for processors respectively also create another source of opportunities to the pasta industry. The remaining 64% of the factories stated that export market potential is also another opportunities they are looking for.

4.2.6.3 Reason for Capacity under utilization

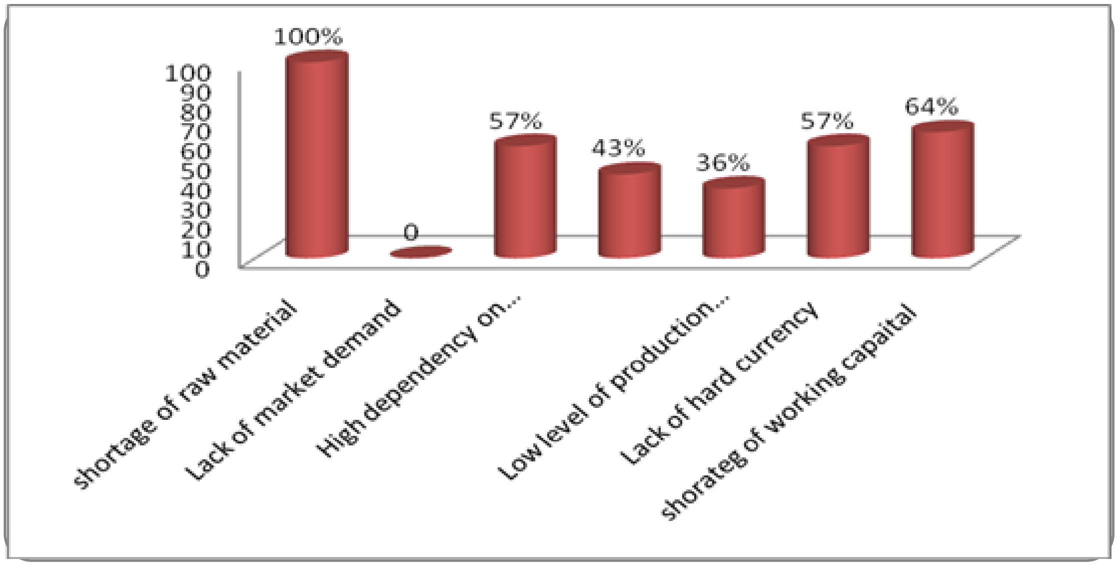


Figure 9 major reasons for under-capacity utilization of firms

Figure 9 indicated that, 100%, 64% respondents pointed out shortage of raw materials and working capital has been ranked as the first and second reason for not working at full capacity respectively. About 57% respondents indicated high dependency on import raw materials and lack of hard currencies contributed for not working at full capacity. The other points raised by respondents were, low level of production technologies (frequent break down) and lack of trained man power also create under capacity utilization.

4.2.7 Interview Analysis

Interviews were held with 16 key informants (10 from durum wheat researchers and 6 from head of agricultural cooperative). Thus, the information gathered through interview analyzed and presented in the following section.

Profile of key informants

The table below shows sex composition, age structure, educational level and work experience of the interview participants. The total number of participants in the study was sixteen (16), of which twelve were males and four were females. When we look at age structure, eleven participants fall under the age ranges of 25 to 39 whereas the remaining five were 40 and more. Regarding the educational level, ten participants in the study were first and second degree holders and remaining six participants were certificate holders. In the same table, nine participants had three to ten years of work experience and seven of them had more than ten years of work experience. Detail profiles of the key informants are shown in the table below**.**

Table 12 Characteristics and profile of interviewed respondents

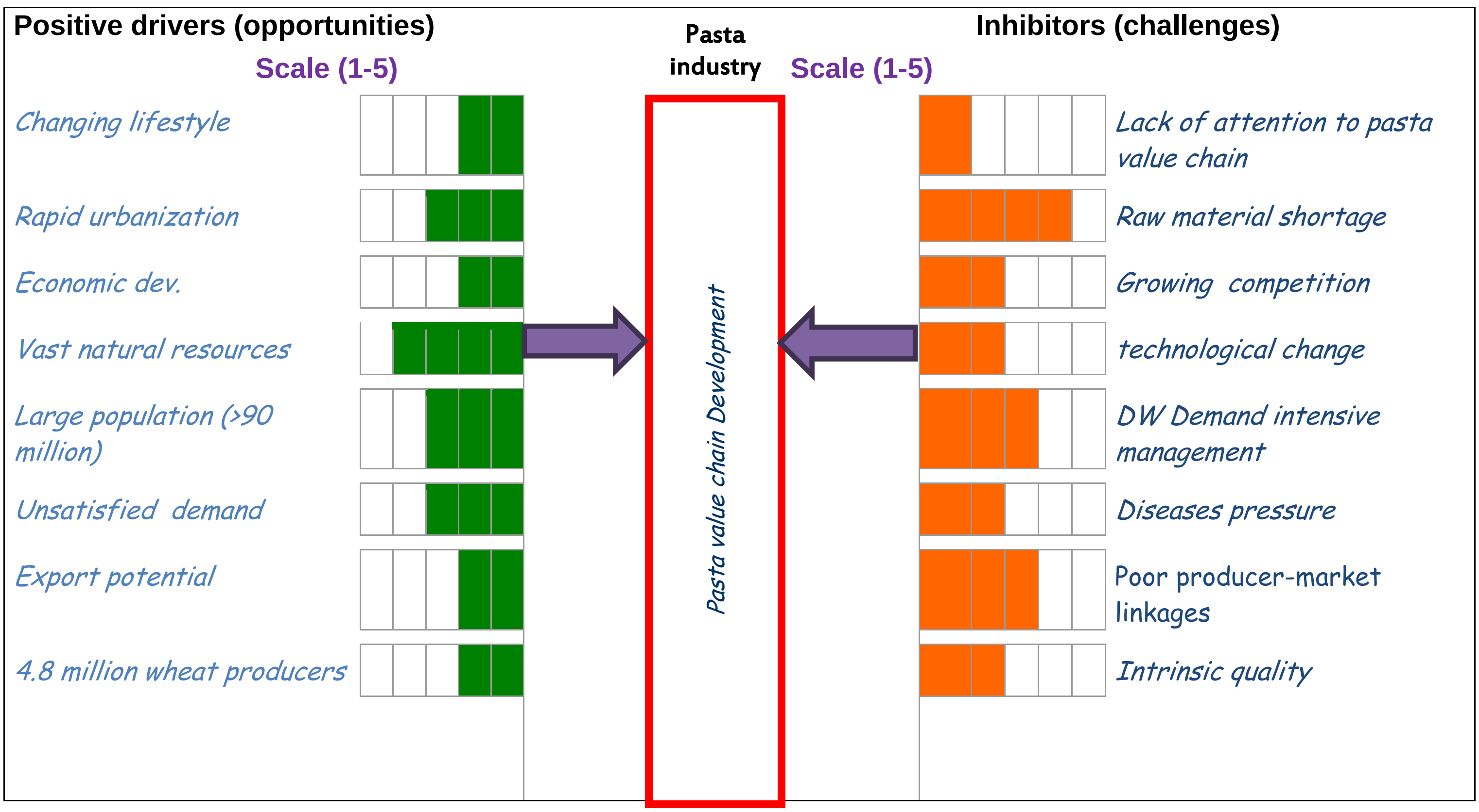
No	Description	Interviewees
1	Sex	
	Male	12
	Female	4
2	Age	
	25-29	2
	30-34	6
	35-39	3
	40 and above	5
3	Work experience in years	
	3-5	4
	6-10	5
	10years and above	7
4	Level of education	
	First and second degree	10
	Certificate	6

Force Field Analysis

To analyze data from semi-structured interview, Force Field Analysis was employed. This is a popular approach to the analysis of qualitative data and helps to categories positive and negative factors. This method provides a framework for looking at the forces that influences a situation.

Major influences on future development of pasta industry gleaned from interviews of key informants illustrated in the diagram shown in figure 10.

Figure 10 Force Field Analysis of the pasta value chain development



Potential forces supporting or opposing pasta value chain development

KNOWLEDGE
DW producers technical knowhow
Pasta producers competency
Current research and dev.

INSTITUTIONS
Current policy and state support
Future legislation and state support
Existing standards

TECHNOLOGY
Availability of new DW varieties
Availability of pasta technologies
Availability of services

ECONOMOY
Future price of DW and pasta
Economic devt.

Themes from semi-structured interview:

Semi structured interviews from key informants (durum wheat researchers, experts and grain producers) systematically analyzed and organized. Accordingly, key information obtained from those interviewees was organized as themes as follow:

- Agricultural technologies are required to enhance durum wheat productivity.
- Producer-market linkages improve the marketability of durum wheat and pasta products.
- Vast land and huge natural resource are essential to foster the production of pasta and, at the same, the launch of new brands.
- Pasta value -chain need sector policy.
- Producers must grow varieties of good intrinsic quality, and wheat must be segregated efficiently according to physical condition and specific quality attributes.
- The basis for pasta products is durum wheat. However, many firms produce pasta from cheap and pseudo raw materials
- There were no attractive incentives for local durum wheat producers to enhance their production.
- Durum wheat is strategically important industrial crop.
- Regarding the agricultural extension service, there are still key gaps yet to be addressed to impact more positive changes on the durum wheat.
- Meeting quality requirements set by processors is challenging for farmers.
- Unlike other crops, durum wheat demand intensive management.
- Demand for Pasta and durum wheat growing in the domestic market

4.1 Discussion of the findings

The discussion of the findings of the study tried to uncover many things about the prospects and challenges of Ethiopian pasta industry. The key findings of the study discussed in detail in this section.

The demand for pasta is growing in the domestic market; the country has a massive potential of high quality and quantity raw material (durum wheat) that will foster the production of pasta and, at the same, the launch of new brands.

Regarding raw materials information the study revealed, in spite of basis for pasta products is durum wheat the local producers made the pasta product by blending hard wheat and durum wheat (more of hard wheat proportion); this is due to, the relative high price of durum wheat, inadequate availability of DW in the local market and shortage of hard currency to import the required raw material. Pasta made from durum wheat however, is very good in cooking quality, color and taste.

Concerning to the quality of raw material, this study also revealed that, locally produced durum wheat is good or at least comparable to imported durum wheat, provided that all durum wheat packages and sound management in place to meet the required quality parameters set by pasta industry. Quality factors such as Protein content continues to be a fundamental requirement to ensure good pasta cooking quality. High protein content and gluten strength make durum wheat the choice for producing premium pasta products.

This study showed that, the main supply sources for pasta makers are local and global (import) market. Until recently the global market is by far the largest supplier of durum wheat (hard wheat) to processing industries in Ethiopia.

Pricing and promotions, among other things, are the major tools of marketing strategies that influence performances of a firm in an industry. To reach the mass market the processors utilizes the existing network of wholesalers and retailers which include supermarkets, manufacturing sales branches and consumer cooperatives. Factory products are supplied to the market following the usual marketing chain, which begins at the factory gates and ends at the consumer's home. Pasta products are very popular in Ethiopia, locally produced and also imported.

This study showed that, internal demand is not yet fulfilled by local processors. The growth rate of local production far less than the annual growth rate of demand so, huge and increasing import of pasta products is taking place. The qualities of the locally produced macaroni and spaghetti are generally inferior compared to the imported mainly because of, poor quality raw material widely used by domestic agro- industries in steady of using the principal raw material.

Study reveals that packaging of pasta and macaroni were very much similar in color, shape and design because of, the relative higher market share and market acceptability of Dire Dawa Food Complex almost all their followers have made similar packaging design, shape and color which prove the sector's poor market innovation and creativity.

As per this study, the major reasons for under capacity utilization of the firms were: shortage of raw materials (the greatest obstacles constraining capacity utilization) and working capital has been ranked as the first and second reason for not working at full capacity respectively. High dependency on import raw materials and lack of hard currencies has been the 3rd reasons for poor capacity utilization. Low level of production technologies this is due to frequent break down reducing capacity utilization rates. Lack of trained man power also constraining efficient utilization of resources as it was reported by the subject of the study.

This study investigated that the reasons for durum wheat's decline or shortage were complex - including the that low productivity durum wheat land race that widely grown across the nation in the country totally consumed at home and fail to reach processors because of its quality problems, lack of access to improved durum technologies that qualifies the required quality parameters, low farmer adoption rates, lack of appropriate and compressive policies, very small proportion of marketable wheat, lack of back ward integration by processors, lack of attention to durum wheat research and seed multiplication; and ineffective marketing to link durum growers to food industries in particular, it aims to create a platform for the interplay of producer-market linkages to improve the marketability of durum wheat, and promote reliable options for wheat producers and the wheat sector.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

The Ethiopian past processing sector is complex. The sector actors involve diverse socio-economic setups from rural smallholder subsistence farmers to commercial large-scale pasta factories. The main purpose of this study was to assess the challenges and prospects of pasta industry in Ethiopia from the point of initial raw material production to large scale past factories. Accordingly, the major challenges and opportunities in the processing sector were identified

- ❖ The country offers great opportunities to the investment in pasta industry, considering that the population is huge (over 90 million offers huge market for pasta products), presence of unsatisfied demand, presence of pasta on the table of families is considerably increasing, export market potential, rapid urbanization where citizen adapting new life style for which pasta is perfect, demand for pasta growing ,the favorable climatic condition and suitable agro -ecologies to produce principal raw material. This shows that the future is extremely promising for pasta manufacturing industry.

- ❖ One of the major problems of pasta manufacturing firms is their inability to utilize their production capacity optimally mainly because of shortage of raw materials, working capital, High dependency on import raw materials, and low level of production technologies etc. Hence, Low level of capacity utilization has remained the distinguishing features of Ethiopian pasta manufacturing sector.

- As compared to the last decade, the production of raw material supply is significantly decline. The reasons for durum wheat's shortage or decline are complex - including lack of access to improved seed, low productivity of local durum wheat varieties (land race), low farmer adoption rates, lack of attention to DW, and ineffective marketing to link durum growers to food industries. Thus, pasta makers couldn't find sufficient supply from the local market and therefore, they are forced to import the required raw material from the foreign market.

- The pasta makers are facing various challenging throughout the production system. The shortage of principal raw materials, huge import costs, and the recurrent scarcity of hard currency in the Ethiopian bank system to import durum wheat, inadequate technologies and capital are among some of the challenges faced by pasta manufacturing. The industry is plagued with a number of constraints and the country remains a net importer of raw material (durum wheat) and processed pasta products.

- The concept of durum wheat quality is complex and confusing. Quality factors such as protein content, gluten strength and color have different priorities in various durum wheat markets. Durum wheat quality criteria are continually evolving in response to technological advances in durum wheat milling. Protein content continues to be a fundamental requirement to ensure good pasta cooking quality.

- Smllholder farmers (SHFs) consume nearly 60% of all the wheat they produce and 20% is used for a combination of seed, in-kind payments for labor and animal feed. Hence, there are small proportion of marketed durum wheat and dominance of the informal market.

5.2 Recommendations

Hoping to enhance the multi-benefit of pasta producers, this study attempted to suggest some recommendations. Hence, based on the research findings and conclusions, the following recommendations are forwarded

a) **Development issues:**

- To make Ethiopian pasta manufacturing fulfilled the internal demand and to overcome huge import costs and the recurrent scarcity of hard currency in the Ethiopian bank system, there is need for the government, private sectors, and its international development partners to support the durum wheat value chain and transform the activity into a lucrative business, which will contribute to the GDP of the country through import substitution
- The country has huge potential to meet the current and ever growing demand of pasta products .The massive potential of high quality raw material (durum wheat) will foster the production of pasta and, at the same, the launch of new brands. Cultivation of improved durum wheat crops suitable for the different agro-ecological zones with accompanied technologies should be encouraged and intensified across the nation.
- Pasta makers should invest in human skill and technologies to enhance capacity utilization. And encouraging and supporting the farmers and agricultural cooperative to increase the proportion of marketable wheat. So that capacity utilization of the manufacturing industries will be improved.
- Investing in durum wheat farm and packing business in the long term will provide competitive edge for firms to compete at low cost. Thus firms should be able to consider backward integration in wheat farms as one of the viable strategies so as to ensure their competitiveness in the market. However the buy or make option has to be well analyzed so as to decide on viability of this recommendation.

- Well organized market department that can carry out market research on existing products and new products, develops sound marketing strategies for all firms is critical in order to enhance their competitiveness.

b) **Policy issue**

- The principal raw material for making pasta products is durum wheat. Thus, a product made from this raw material is good quality in nature. However, because of different reasons the pasta manufacturing have been using hard & soft wheat and other cereal crops as a key input, So to protect the right of fast growing consumers government should drafted a favorable policy to ensure a healthy and quality products avail to consumers.

- The demand for pasta is growing in the domestic market, so ever increasing amount of durum wheat grain are needed. But the internal demand of pasta is not yet fulfilled through domestic production, so a huge importation of pasta is taking place. To overcome this situation government should formulate compressive and effective policies that will encourage durum wheat growers increased commercialization and production of durum wheat through increased market information and linkages. The policy should focuses on increasing local DW production to replace all current imports and ensure efficient import controlling system.
- A comprehensive strategy is critical to the long-term, sustainable development of the durum wheat value chain. This strategy has been in development through collaboration between the pasta factors, MoA, EIAR, Ministry of Trade, and the ATA. Like all sector strategies developed as part of the Transformation Agenda, the durum wheat Value Chain Development Strategy will identify existing bottlenecks, along with recommendations for a series of interventions
- The need to establish sector advisory services at national level is important to make improvements on the various components of the durum wheat value chain. Institutions and Organizations such as the MoA, EIAR, CIMMYT, EMA, are vital in providing services.

- The level of focus in durum wheat research should be raised, primarily through resource allocation to durum wheat research. These investments should target increasing the number of durum wheat varieties that combine higher yields with rust resistance, while maintaining key quality traits that are demanded by commercial durum wheat processors and consumers. Private/ Public partnerships between research institutions, commercial durum wheat processors, government and bilateral or non-governmental organizations should be in place to increase and sustain the levels of investments in durum wheat research so that the country can exit from importing both processed pasta and principal raw materials.

c) Stakeholder Coordination

- The government and its international development partners should coordinate other stakeholders to undertake a variety tasks and to effectively use of chances. Opportunities for processors need to be further identified and access facilitated. Create improved market linkages to help farmers and processors in maximizing their profit.
- For supply security and pricing, the pasta manufacturing firms should enter in to medium or long term contracts with key stakeholders including: pasta plants, millers, cooperatives and elevators.

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Annex I: survey questionnaire

A. Company background information

Addis Ababa University

Post graduate program

Marketing management Department

QUESTIONNAIRE FOR PASTA MAKING FIRMS

INTRODUCTION & OBJECTIVE OF THE STUDY

Welcome!

Thank you for taking a few moments to complete this questionnaire. A senior essay entitled' From durum seed to past: prospects and challenges of industrial product marketing in Ethiopia" is designed to collect data on the prospects and challenges in Ethiopia pasta industry currently have and face. The study is purely for academic purpose. The research has important implication for the development of endeavor that different stakeholders have pursuing to make the industry efficient by promoting the existing opportunities and help to eliminate the existing challenges. In particular it will help the existing and potential local durum grain producers and pasta makers in the area as well as in the country. The study also tries to analyze the supply, demand and factors affecting marketability of pasta products and its principal raw materials (durum wheat) in Ethiopia. Therefore, your reflection of reality to the questions in the questionnaires is vital and has great value to accomplish the intended goal and objective of the research work.

The information you provide will remain completely confidential.

General instruction or Directions:

- The questionnaire has open and closed ended questions, try to complete all questions in the questionnaire.
- For closed end or multiple type questions try to encircle the letter of your choices .you can encircle more than one in a single question if you have more than one answers.
- For open ended questions, write your opinion precisely in space provided.
- For further explanation use the attached sheet by indicating the question number

Name of organization	
Gender (1=Male, 2=Female)	
Organization Identification Number	
Firms size (1=Large, 2=medium ,3=small)	
Year of establishment (GC)	
Types of ownership (1=PLC, 2=Share comp, 3=JV, 4= other	
Your level of education (certificate, Diploma ,1st degree, 2nd degree, PhD)	
Your current position in the company (1=GM,2=MM, 3=senior staff 4= other	
For how long you have been working in the company (years)	

B. Location of the company

1. Region -- Zone --

2. What were your reasons for choosing this location for your factory and what factors do you considered in selecting optimal location? (5=critically important, 4=highly important, 3= important,2 =fairly important, 1= less important)

   a. Proximity to market
   b. Closeness to raw materials
   c. Availability of labor force
   d. Infrastructure
   e. Service availability

C. Raw materials information

3. What type of wheat you are commonly used to make pasta products?
    a) Soft wheat
    b) Durum wheat
    c) Hard wheat
    d) Corn/rice
    e) A combination of two or more raw materials
4. From where did you buy the principal raw material mentioned in the above question?
    a) Domestic market only
    b) Foreign market only
    c) A mix of both market

5. The durum wheat grain availability and accessibility are?
    a) Adequate
    a) Poor
    b) Inadequate
    c) Surplus
6. How do you rate the quality of locally produced durum wheat as compared to imported?
    a) Poor
    b) Fair
    c) Intermediate
    d) Good
    e) Excellent
7. What is your basic measurement for quality of durum wheat (rank from 1-5)?
    a) Protein --------------------
    b) Gluten strength------------
    c) Falling number------------
    d) Impurity -----------------
    e) Moisture ---------------
    f) Amber color

8. What portion of raw materials supplied from local market during the last two years (%)?

----

9. What portion of raw materials supplied from import market during the last two years (%)?

----

10. How much the average price of locally available durum wheat in 2014 and 2015 (birr/qt)?----

----

----

11. How much the price of imported durum wheat in the same Period (birr/qt)? ---------------------

----

----

12. If you import principal raw materials from where did you import? --------------------------------

----

----

13. If raw material sufficient enough in the domestic market are you going to engaged in

Import? (1=yes, 2= No)? ------------------------------if yes, why? --------------------------------
----
----

14. If you buy durum wheat from the domestic market from where you buy?

a. Directly From farmers
b) From cooperative
c) Through brokers
d) Through grain traders
e) Others-------------------

15. How is do you rate your relationship with raw material suppliers?

a) No r/ship
b) At begging,
c) At rising
d) At partner level
e) Other----------

16. Do you have cultivation contract with grain suppliers? (1=Yes,2=No)

17. At what time you buy durum wheat (months)? ---------------------------- Why? ------------------

D. Product, Market and distribution channel information

18. Who are the company's major customer groups (?

a) Domestic business organization (wholesale, retailers, hotel, café)
b) Domestic individual consumers
c) Foreign market
d) All

19. What is the company's overall business strategy?

a) Low cost
b) Differentiation
c) Focus (niches)
d) A combination ------------------------------

20. Where is your current key or spot market?

a) Addis and its surroundings
b) Regional
c) International market
d) Other --------------

21. Distribution outlet used by pasta making industries (4=most widely used channel, 3=widely used 2= usually used, 1= not commonly used)

a) Wholesalers
b) Retailers
c) Consumer cooperative
d) Manufacturer sales branches
e) Supermarket

22. how do you rate the demand for pasta (spaghetti and Macaroni) in the domestic market

a. growing demand
b) latent demand
c) declining demand
d) static demand

E. Structure of Pasta Producing Firms information

23. significant Barrier to entry (rank from 1-5) 1= least important 5 =most important

a) the capital requirements
b) skilled man power
c) availability of quality wheat
d) effect of branding
e) effect of advertisement

24. product differentiation is possible in the industry through

a) taste
b) color
c) Shape/ingredient
d) branding
e) packaging

25. competition in the industry based mainly

a) branding
b) packaging
c) advertisements
d) Price

26. How do you rate Competition in the industry?

a) Intensive
b) Moderate competition
c) Weak
d) No competition

F. Opportunities and challenges

27. What are the main problem or challenges you have in this sectors

a) Low supply of durum wheat in the country.
b) Scarcity of hard currency
c) Competition from both local produce and import pasta.
d) Ineffective marketing linkage among key stakeholders in the value chain.
e) Industry demands higher level of technologies, capital, and skilled manpower.
f) Lack of market information and intelligence.
g) Shortage of expertise in the pasta industry,
h) Frequent interruption of electric power.
i) Lack of adequate infrastructural facilities.
j) Unreliable climatic condition
k) Seasonality consumption of pasta.
l) Consumer taste and preference change over time
m) High cost of raw logistics
n) Capacity underutilization:
o) Globalization and increasing competition in the pasta industry

28. What promising opportunities you company and others have in this sector

a) Unsatisfied demand (demand > local production)
b) Huge population
c) The presence of pasta on the table of families is considerably increasing.
d) Rapid urbanization where citizen adapting new life style
e) Increasing or growing domestic demand for pasta.
f) Export market potential
g) Incentive packages:

29. Reason for capacity underutilization (rank 1-5)

a) shortage of raw material
b) Lack of market demand
c) High dependency on imported raw materials
d) Lack of trained man power
e) Outdated technologies
f) Lack of hard currency

30. If you have further comments please indicate in the space provided below.-----------------------

----

Annex II

Interview questions with *durum wheat growing cooperatives organization*

Addis Ababa University School of Commerce

Post graduate program

Interview questions

Dear respondents:

The purpose of this interview question is to enable me to carry out a research for the partial fulfillment of master's degree in marketing management. The research focuses on pasta industry with the topic of "From durum seed to past: prospects and challenges of industrial product marketing in Ethiopia". Interview questions are tools used to collect data. Hence, to gather information, I kindly seek your assistance in responding to the questions listed below. Any information you present will be kept utterly confidential and will be used only for academic purpose. Your cooperation and prompt response will be highly appreciated.

Thank You in advance!

1) How long you have been growing durum wheat?
2) For what purpose you grow durum wheat?
3) What are the main problems exist for durum wheat growers?
4) In the recent year have you seen a remarkable production increases in DW?
5) Where do farmers selling their durum wheat grain and obtained high price for their grain?
6) How you are selling or distributing durum wheat to the intended customers? Do you have cultivation contract with mills or pasta makers?
7) As compared to other cereals is durum wheat cultivation is a promising business to you?
8) How price of durum wheat determined in your organization
9) What transportation system you are using to distribute Durum wheat to the market?
10) Is there any factors affecting the marketability of locally produced durum wheat?
11) How do you rate the price of DW as compared with soft wheat?
12) What incentives available for production of DW?
13) Do you want to grow DW in the future?
14) As a producer what problem do you observed? Which factors are affecting the marketability of DW?
15) Do farmers' cooperative beneficiaries from durum wheat production and marketing?
16) If you have further comments please indicate

Annex III

Interview Questions with DW Researchers

Addis Ababa University School of Commerce

Post graduate program

Interview questions

Dear respondents:

The purpose of this interview question is to enable me to carry out a research for the partial fulfillment of master's degree in marketing management. The research focuses on pasta industry with the topic of "From durum seed to past: prospects and challenges of industrial product marketing in Ethiopia". Interview questions are tools used to collect data. Hence, to gather information, I kindly seek your assistance in responding to the questions listed below. Any information you present will be kept utterly confidential and will be used only for academic purpose. Your cooperation and prompt response will be highly appreciated.

Thank You in advance!

1. What are the key successes to durum wheat production in Ethiopia?
2. Why do you think for the decline of durum wheat production in the country?
3. How do you think the country`s requirement of pasta and macaroni is met through local production?.
4. What are the main opportunities exist for durum wheat growers?
5. What are the main challenges that exist for durum wheat growers?
6. How your organizations support the durum wheat value chain?
7. What strategies to be pursued to grow the principal raw material with the required quality and quantity for the production of pasta products beyond the current and ever growing demands by domestic market?
8. How can major actors in the value-chain optimally contribute to the country pasta industry and national economy as well?
9. If you have further comments please indicate

Annex IV Measures of reliability.

Level of experience	V1	V2	V3	V4	V5	V6	(KR alpha)
1	**5**	**4**	**4**	**4**	**4**	**4**	**0.84**
2	**2**	**2**	**3**	**5**	**5**	**4**	**0.75**
3	**3**	**4**	**4**	**4**	**2**	**4**	**0.71**
4	**3**	**4**	**5**	**3**	**3**	**5**	**0.80**
5	**4**	**5**	**5**	**3**	**5**	**2**	**0.79**

0≥ KR ≤1, the widely- accepted cut- off Kuder- Richardson reliability or coefficient alpha should be 0.7 or higher for set of items considered

- V1-content quality: (1) very low content quality (2) low content quality (3).moderate content quality (4) high content quality (5) very high content quality.
- V2-generalizability: (1) very specific (2) specific (3) neutral (4) generalizable (5) totally generalizable. V3-cognitive complexity: (1) very simple (2) simple (3) fair (4).complex (5) very complex
- V4 meaningfulness: (1) very meaningless (2) meaningless (3) neutral (4) meaningful (5) very meaningful.
- V5-fairness: (1) very unfair (2) unfair (3) neutral (4) fair (5) very fair.
- V6-cost and efficiency: (1) very expensive and inefficient (2) expensive and inefficient, (3) neutral (4) cheap and efficient (5) cheap and efficient.