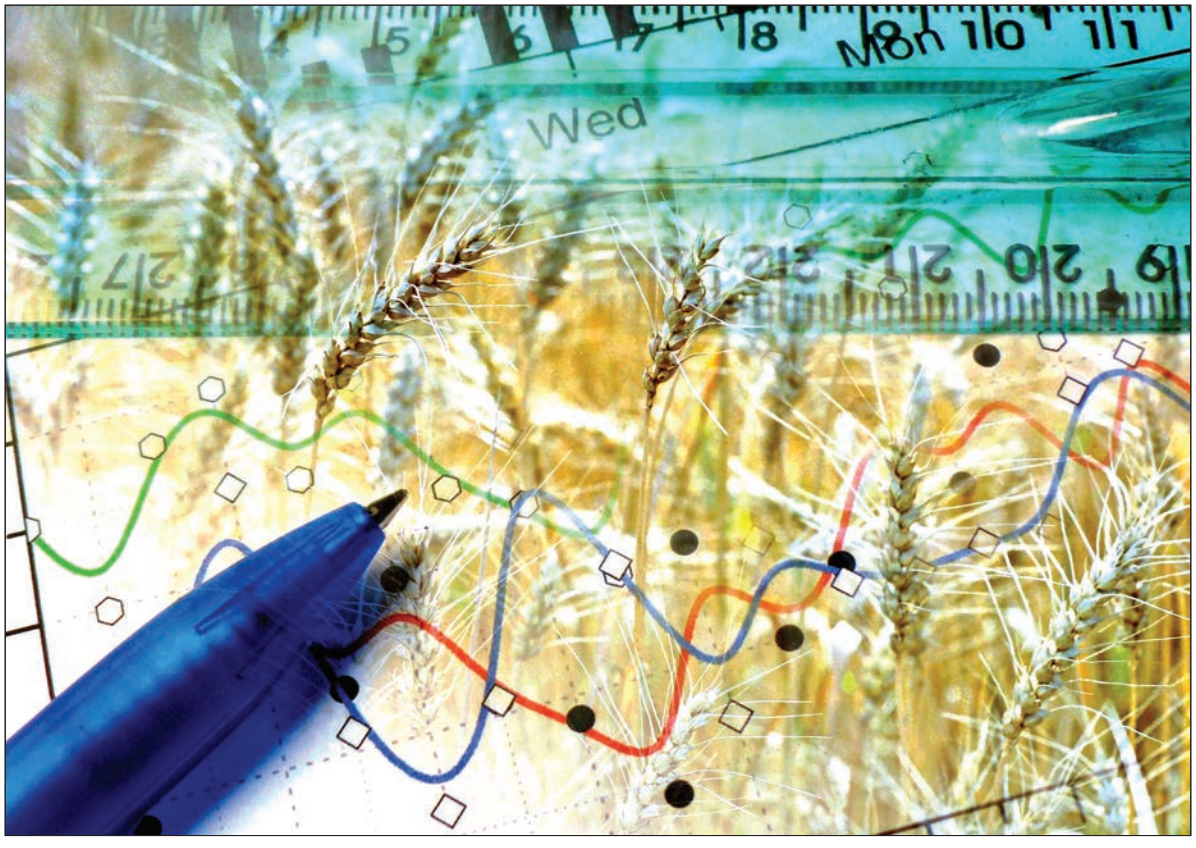

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Hot Pepper Production and Marketing in Southwest Ethiopia: An Alternative Enterprise for Small Scale Farmers

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ABSTRACT

This study was initiated with the objective of examining the existing hot pepper production and marketing, assess its socioeconomic role in the life of producers and other actors and point out the existing bottlenecks of production and marketing. Descriptive statistics, net benefit and margin analysis were employed to analyze the data. The result indicated that local varieties called marco (in Omo Nada) and kolesh (in Gojeb) are largely used by farmers and provide a yield ha^{-1} of 16.39 and 12.21 quintal, respectively through using fertilizer and spacing technology. The assessment of the market structure revealed that the largest volume (50%) of sale directly goes to the local consumers followed by the volume channeled to assemblers (28.5%) and retailers (21.5%). The margin analysis revealed that producers take the highest profit margin of 100 and 68.2% when the product is sold directly to the local consumers and retailers, respectively. But when hot pepper is channeled to Jima and Addis Ababa, producers get a profit margin of 53.3 and 42.8%, respectively making the respective total gross margin taken by the intermediaries to be 46.7 and 57.2 out of which the largest share is taken by the assemblers without having a significant value addition activity. Therefore, with the assumption that their possible linkage role can effectively be taken by the local wholesalers and retailers, banning of local assemblers from the market chain can be taken as one option for improving the efficiency of the chain. Low productivity, illegal act of actors in the chain, poor quality of product, low and fluctuating price, small and confined market place together with long market distance were found to be the major problems adversely influencing the production and marketing of hot pepper in the area.

Key words: Hot pepper, market structure, market conduct, market performance, marketing margin

INTRODUCTION

There are many names for pepper in different countries of Asia. Chilli peppers are called ema in Bhutan, la-jiao in China, cabe in Indonesia, prik in Thailand and chilli in India. The early Aztecs of Mexico also called them chilli and this term is the most commonly used today around the world, with some variant spellings: chile, chili, chilly etc. (Berke, 2002). According to American Spice Trade Association (ASTA), red pepper is preferred name for all hot red pepper (EEPA, 2003).

Pepper is produced in all the continents except Antarctica. In Antarctica there are stories about pepper being kept in flower pots to spice up their food (Bosland and Votava, 2000). It is believed to have originated in Central and South America. Peru and Mexico might have been the second centers of origin, after which it spread into the New World Tropics before its subsequent

introduction into Asia and Africa in 1493 (Bosland and Votava, 2000). Tropical Asia (India, Malaysia, Thailand, Indonesia and Philippines), tropical Africa (North Africa, Senegal, Nigeria, Ghana and Kenya) and South America (Mexico) and the Caribbean are the main producers. Over 48% of the world pepper is produced in Asia, China being the leading country. The production in China alone exceeds the entire production of European countries (Rubatzky and Yamguchi, 1997). India is the major exporter of dry chilli peppers, followed by China and the major importing countries are the USA and Germany (Berke, 2002).

Ethiopia also cultivates pepper but her share in the world is insignificant. Compared to India that produced 4 million metric tons from 891,800 ha in 1992, Ethiopia's production in 2001/02 was only 77962.4 metric tons harvested on 55,381 ha (CSA, 2003). Productivity is also incomparable with China where yield reached to 15 metric tons per hectare in 2001/02.

The history of pepper in Ethiopia is perhaps the most ancient than the history of any other vegetable product (EEPA, 2003). Ethiopians have strong attachment to dark red pepper which has high value principally for its high pungency. The fine powdered pungent product is an indispensable flavoring and coloring ingredient in the common traditional sauce Wot whereas; the green pod is consumed as a vegetable with other food items. There is a general belief among Ethiopians that a person who frequently consumes hot pepper has resistance to various diseases. It is in the daily diet of most Ethiopians. In addition to having major role in Ethiopians daily dish it also plays an important role in the national economy. It is an important cash crop today on average 79% of pepper production is for market in SNNPRS (CSA, 2003). It is a crop of high value in both domestic and export markets. Since it is a commercial and industrial crop, it generates employment to urban and rural workers.

In recent years, the area of production of hot pepper in southwest Ethiopia is increasing due to its high price in the market as compared to other major food crops such as maize that are known to be widely cultivated in the region. Therefore, it is rational to design strategies that can support and facilitate such a vibrant agricultural transformation which could have an immense impact on the socioeconomic life of the people in this part of the country.

However, such endeavor could only be facilitated with the knowledge of the existing production and marketing system together with the associated production and marketing bottlenecks. But no study has been made in the past to deal with such basic issue in the area. This study therefore mainly intends to fill this gap.

The major (general) objective of this research is to study hot pepper production and marketing in South west Ethiopia:

- To examine the existing level of hot pepper production, market structure and performance in the area
- To assess the socioeconomic importance of hot pepper for the producers and other actors in the market chain
- To point out constraints for hot pepper production and marketing in the area

MATERIALS AND METHODS

Description of the study area: This study was made from September 2010 to June 2011 in Omo Nada and Gojeb area which are widely known for their large volume hot pepper production in Southwest Ethiopia.

Omo Nada is one of the 180 woredas in the Oromia Region of Ethiopia. Part of the Jimma Zone, Omo Nada is bordered on the south by the Gojeb River which separates it from the Southern

Nations, Nationalities and Peoples Region (SNNPR), on the west by Dedo, on the northwest by Kersa, on the north by Tiro Afeta, on the northeast by Sokoru and on the east by the Omo River which separates it from the SNNPR. Nada is the administrative center of the woreda; other towns in Omo Nada include Asendabo.

The altitude of this woreda ranges from 1000 to 3340 m above sea level. Major peaks include Mounts Maigudo, Gudaje and Dasu Boreto. Perennial rivers include the Gilgel Gibe, Nada Guda and Beyem. A survey of the land in this woreda shows that 56.8% is arable or cultivable (36.3% was under annual crops), 25.2% pasture, 6.3% forest and the remaining 11.7% is considered swampy, degraded or otherwise unusable. Teff and wheat are important cash crops. Coffee is also an important cash crop for this woreda; between 20 and 50 square kilometers are planted with this crop.

Based on figures published by the Central Statistical Agency in 2005, this woreda has an estimated total population of 254,417, of whom 127,625 were men and 126,792 women; 12,958 or 5.09% of its population are urban dwellers, which is less than the Zone average of 12.3%. With an estimated area of 1,602.66 square kilometers, Omo Nada has an estimated population density of 158.7 people per square kilometer, which is greater than the Zone average of 150.6.

Gojeb is located in the southwest part of Ethiopia with an elevation of 1,868 m above the sea level. It has an area of 100 km^2 and an approximate population of 4,431,338. Most of the natural vegetation is still intact and the landscape is mostly covered with closed to open shrub land. The climate is classified as a tropical savanna (winter dry season) with a subtropical moist forest biozone. The soil in the area is high in nitosols and with deep, clay-enriched lower horizon with shiny ped surfaces.

Data type: Both primary and secondary types of data were used for this study.

Method of data collection: Informal survey was first undertaken to have a better insight about the area. In this survey, purpose selection of weredas and then PAS were made on the basis of volume of production of hot pepper. By this survey, general information that are useful for designing questionnaires were collected by using PRA techniques (group discussion and transect walk). The subsequent (formal) survey was then undertaken by interviewing 240 purposively selected farm households using a structured questionnaire. Other than Producers, some traders of hot pepper (local collectors, wholesalers, Retailers) were also interviewed to generate valuable information on the marketing aspects.

Secondary information were also collected from the office of agriculture and other concerned bodies.

Method of data analysis: Descriptive statistics were used to describe the existing production and marketing aspects. Margin analysis was also used to examine the performance of the market.

Margin analysis: A marketing margin is the percentage of the final weighted average selling price taken by each stage of the marketing chain. The total marketing margin is the difference between what the consumer pays and what the producer/farmer receives for his product. In other words it is the difference between retail price and farm price (Cramer and Jensen, 1982). A wide margin means usually high prices to consumers and low prices to producers. The total marketing margin may be subdivided into different components. All the costs of marketing services and the

profit margins or net returns. The cost and price information obtained from the survey were used to evaluate the gross marketing margin. The method of analysis of marketing margin was as follows:

$$TGMM = \frac{\text{End buyer price} - \text{First seller price}}{\text{End buyer price}} \times 100$$

The TGMM is useful to calculate producers gross margin (GMMp) which is the portion of the price paid by the consumer that goes to the producer. The producer's margin is calculated as:

$$GMM = \frac{\text{End buyer price} - \text{Marketing gross margin}}{\text{End buyer price}} \times 100$$

Profitability analysis: To estimate profitability of red pepper production, all variable costs for red pepper production were considered. The unit of analysis is hectare of land. Hence, for this study the average profit was calculated by deducting the total Variable Cost (VC) from the total revenue as follows:

$$\text{Gross profit} = V\text{-}C = PQ\text{-}\Sigma\, p_i\, x_i$$

Where:
P: Price of produce
Q: Total production per hectare
p_i: Price of input i
x_i: quantity of input i
V: Value of production (price times Quantity)
C: Total cost of production

RESULTS AND DISCUSSION

This part of the paper present the Socio-demographic characteristic of the sampled household produces, the level of production and inputs used in the production and the marketing system of hot pepper in southeast Ethiopia.

Socio-demographic characteristics: The socio-demographic characteristic of the households which could have a relation with the production and marketing of agricultural products can be described in terms of age, family size, sex and educational status of the producing households. Accordingly, the socio-demographic characteristics of the sampled hot pepper producing households are illustrated in Table 1.

The result in Table 1 indicates that hot pepper is largely produced by Male headed households in both areas and this in fact calls for a strategy to equip female farmers with the provision of the necessary technical and financial support to help them involve in the production.

The significant difference in the religion of the small holder producers (92.5% orthodox in Gojeb and 96.8% Muslim in Omo Nada) in the two areas can indicate that hot pepper production in Gojeb

Table 1: Socio-demographic characteristic of households

	Omo Nada		Gojeb	
Characteristic	N	Mean	N	Mean
Age of the household head	120	38.5	120	42.8
No. of family members within the productive age group (15 = X = 65)	120	2.0	120	3.0
No. of family members with unproductive age group (<15 and <65)	120	4.0	120	3.0
Experience in the production of hot pepper (in years)	120	7.0	120	14.8
	Omo Nada		Gojeb	
Characteristic	N	%	N	%
Sex of the household head	120		120	
Male		93.5		100.0
Female		6.5		
Religion of the household	120		120	
Muslim		96.8		7.4
Orthodox		3.2		92.5
Educational status of the household head	120		120	
Illiterate		33.3		32.1
Read and write		3.3		25.0
1-6		53.3		17.9
7-8		10.0		3.6
9-12		-		-

Source: Survey result (2011)

is largely practiced by the settlers from the north (mostly Christians) and natives (mostly Muslims) in Omo Nada. This therefore may call for more extension work in terms of demonstration and training for the respective non producing strata of population in the two areas. The larger proportion of producers with better years of formal education in Omo Nada (63.3%) as compared with producers in Gojeb (42.9%) can be taken as an advantage for a smooth dissemination of good practices and technologies within a relatively short period of time.

However, the higher average age (42.8 years) and production experience of small holders (14.8 years) together with a more amount of productive labor in a family (3 people) in Gojeb area could create a conductive environment to increase production and productivity through the use of accumulated indigenous knowledge and practices.

Hot pepper production

Land and other inputs used in hot pepper production: Like many other crops in the area, the level of production of hot pepper is also dictated by the type and level of inputs used (varieties, fertilizers), land size and agronomic practices employed in the area. Therefore, before discussing about production and productivity, it is rational to investigate the type and level of inputs used and agronomic practices employed for hot pepper production and are summarized in Table 2.

The result in Table 2 indicates that out of the average total cultivated land owned by a single small holder in Omo Nada (2.38 ha), 0.35 ha is allocated for hot pepper whereas 0.57 ha from the total cultivated average land holding of 3.84 ha is allocated for this crop in Gojeb area. That is 14.8% of the total cultivated land owned by an individual farmer is allocated for hot pepper in both areas and this level of land size for this crop has been achieved through sacrificing the land for other cereals as reported by the majority of the respondents (90.3% in Omo Nada and 67.9% in

Table 2: Land, other inputs and agronomic practices for hot pepper by an individual small holder

	Omo Nada		Gojeb	
Items	N	Mean	N	Mean
Average size of cultivated land (in ha)	120	2.38	120	3.84
Average activated land allocated for hot pepper (in ha)	120	0.35	120	0.57

	Omo Nada		Gojeb	
Items	N	%	N	%
Trend of land allocation for hot pepper	120			
Increase		90.3		67.9
Decrease		-		14.3
The same		9.7		17.9
Do you use fertilizer for hot pepper	120		120	
Yes		100.0		85.7
No		-		14.3
Type of fertilizer for hot pepper	120		120	
DAP only		-		87.5
Urea only		-		-
Both DAP and urea		100.0		12.5

	Omo Nada		Gojeb	
Items	N	Mean	N	Mean
Average amount of Urea ha^{-1} in kg	120	144.35	120	100.00
Average amount of DAP ha^{-1} in kg	120	343.55	120	72.92

	Omenada		Gojeb	
Items	N	%	N	%
Variety used	120		120	
Local		100		100.0
Improved		-		-
Do you use spacing for hot pepper	120		120	
Yes		100		82.1
No		-		17.9

Source: Survey result (2011)

Gojeb) in the study areas. This therefore, could prove that hot pepper is becoming an equally important alternative cash generating enterprise with that of maize (the most important crop for sale and consumption in the area) by the small scale farmers in the study areas. However, a different result was reported by Rehima Mussema on her work on Analysis of red pepper marketing for Alaba and Silte zone of Southern region in 2006. According to her result, the average land holding allocated for hot pepper by a single household was estimated to be 0.28 ha.

The result of the study in Table 2 also depicted that local varieties called marco and Kolesh are used by all the respondents in Omo Nada and Gojeb, respectively and this therefore calls for a more coordinated effort to generate and disseminate improved variety which could provide better yield than those of the local varieties. Both DAP and Urea are largely used by all the sampled small holders in Omo Nada. But the use of Urea is minimal and only DAP is largely used by producers in Gojeb area. There is also a significant difference on the application rate of these chemical fertilizers between farmers in the two areas. According to the investigation made, 100 Kg ha^{-1} of DAP and 72.9 kg of DAP are reported to be the average application rate in Gojeb whereas

Table 3: Yield per hectare of hot pepper under different conditions

	Omo Nada				Gojeb			
Items	N	At the time of good harvest	At the time of poor harvest	Mean	N	At the time of good harvest	At the time of poor harvest	Mean
Yield from the local Marco variety before spacing and fertilizer (in quintal)	120	11.38	6.55	8.97	-	-	-	-
Yield from the local Marco variety after spacing and fertilizer (in quintal)	120	19.61	12.80	16.39	-	-	-	-
Yield from the local Kolesh variety before spacing and fertilizers (in quintal)	-	-	-	-	120	10.25	5.20	7.73
Yield from the local Kolesh variety after spacing and fertilizers (in quintal)	-	-	-	-	120	1529.00	9.04	12.21

Source: Survey result (2011)

343.55 kg ha^{-1} of DAP and 144.35 kg ha^{-1} of Urea are applied for hot pepper production in Omo Nada area. This significant difference in the rate of application in the two areas can be attributed to the difference on the nature of soil on which this crop is growing. According to the result obtained, the soil for hot pepper in Omo Nada is red in color and is characterized by low fertility and poor drainage than that of Gojeb. Hence, this call for a strong and coordinated works on improving and recovering the fertility of the soil. The wereda office of agriculture and local markets are the main sources of fertilizers as reported by 87.5 and 96.8% of the sampled respondents in Gojeb and Omo Nada, respectively.

In addition to chemical fertilizers, spacing is used as agronomic technology by 100 and 82.1%, of the respondents in Omo Nada and Gojeb, respectively to increase production and productivity. A spacing technology of 25 cm between plants and 75 cm between rows is used by the hot pepper farmers in Omo Nada area as per the recommendation of the local agricultural office/research center. But half of the farmers in Gojeb area use their own estimate of spacing of 30-40 cm between plants and 40-50 cm between rows to increase productivity. This therefore calls for more extension work in the form of demonstration and training to disseminate the recommended spacing technology in Gojeb area.

Level of yield/productivity: According to the type and level of inputs and improved practice employed, the yield obtained from hot pepper also differed significantly in the two areas of study. Table 3 illustrates the yield of hot pepper under different circumstances in the two study areas.

As can be seen from the above table, the average yield of Marco variety in Omo Nada area before (8.97 Q ha^{-1}) and after (16.39 Q ha^{-1}) the improved practices (spacing and fertilizer) were found to be larger as compared to the yield of Kolesh variety in Gojeb area. This can be attributed to the difference in the variety as well as the type and level of fertilizer usage and spacing practices in the two areas. This therefore clearly indicates that there should be a coordinated effort to improve, scale up and make accessible all those relevant inputs and good practice to increase productivity and help the small holders get a better livelihood from this alternative cash generating enterprise. However, a smaller level of yield was reported by Musema (2006) on her work on red pepper marketing for the case of Alaba and Siltie zone. According to the result of her investigation, 4.86 and 5.94 Q ha^{-1} are produced in Alaba and Siltie Zone, respectively. On

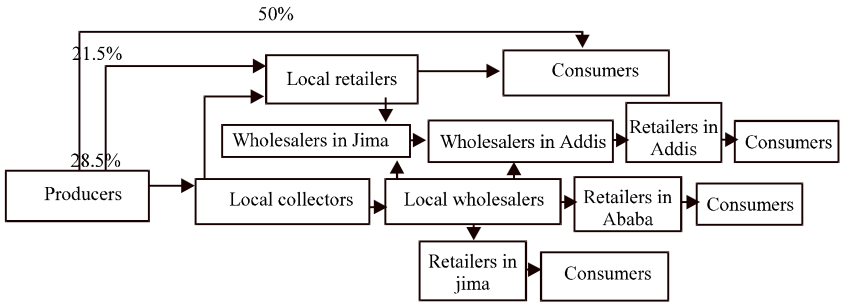

Fig. 1: Market channel of hot pepper

the contrary, a vey huge yield which ranges between 7,500 and 45,000 kg ha^{-1} was reported by (Singh *et al.*, 2007) on their work on Evaluating the competitiveness and development of industrial strategies for hot pepper in CARICOM region in 2007.

Marketing: The overall marketing system of hot pepper is explained in terms of structure, conduct and performance in the subsequent section.

Market structure and conduct: The investigation of the market structure depicted that more than half of the hot peppers produced are channeled from the producers to the retailers and consumers in the nearby town market. But the remaining volumes are channeled through the local collectors, and wholesalers to reach to its final destination. The current market chain of hot pepper in the study areas is illustrated (Fig. 1).

As can be seen from Fig. 1 the larger volume of sale (50%) by the producers directly goes to consumers followed by the volume channeled to the local assemblers (28.5%) and retailers (21.5%). A more detailed and in depth information of this channel can be obtained through investigating the market of each of the participant in the chain and are described below.

Producers market: The investigation of the producers' market showed that an average amount of 11 and 15 quintal of hot pepper are provided for sale in one production season by a single producer in Gojeb and Omo Nada, respectively. All the sales are made in the nearby town market with an average price of 22.3 and 35.69 Birr kg^{-1} or 1.31-2.1 USD kg^{-1} in Gojeb and Omo Nada, respectively and this makes an individual producer to get an average gross income of 4,906 and 10,707 Birr or 288.58 and 629.82 USD in the two respective areas in one production reason. However, a different level of market supply was reported by (Abay, 2010) on market chain analysis of red pepper in Bure area of Amhara region. According to him, the average amount of red pepper supplied to the market by producers was 5.24 quintal with minimum amount of 0.5 quintals and maximum of 19 quintals. The result of the assessment also revealed that there are no intermediaries and processing/value addition activities in this market. Rather, some producers especially in Gojeb area perform an illegal act of mixing the hot pepper with water so as to increase its weight and benefit from the volume of sale.

The assessment of this market also indicated that there is no formal and organized way of getting market (price information). More than 75% of the producing households get price information from the informal source such friends and neighbors who have already visited the market.

Local assemblers market: The assessment of the assemblers market indicated that a single assembler purchase 50-120 quintal of hot pepper from the producers in one production season and sell to the wholesalers and retailers in Jimma and Addis Ababa with a price ranging between 32 and 60 Birr kg^{-1}. The investigation of this market also revealed that there are no intermediaries working between the assemblers and their clients. Value addition activities are also totally absent in this market category.

Local wholesalers market: The investigation of the local wholesalers' market depicted that they largely purchase hot pepper from the local assemblers. The wholesalers purchase 150-280 quintal Quintals depending on the existing market and availability of the product. They then sell this product to the wholesalers and retailers in Jimma and Addis Ababa with a price ranging between 38 and 65 Birr kg^{-1} or 1.88-3.53 USD kg^{-1}. Unlike the above two markets, there are intermediaries (brokers) working in this market for creating linkage with the buyers and service providers such as transportation and warehouses. Drying and removing of the poor quality are also done by this group of wholesalers to increase the quality of hot pepper that they provide to the market. But other significant processing activities related with changing the form in a way that can add value and be suitable for users is totally absent.

Retailers market: The result of the assessment of this market showed that 21.5% of the volume of hot pepper is channeled to the local retailers. According to the result obtained, an individual retailer sell 30-60 quintal of hot pepper in Gojeb and Omo Nada, respectively to the local consumers and wholesalers in Jimma with a price ranging between 35 and 58 Birr kg^{-1} or 2.06 and 3.41 USD kg^{-1}. Like the producers and assemblers market, this market is free from the influence of any intermediaries (brokers) and doesn't enjoy value addition activities.

The assessment of the market conduct in all the market chain depicted that the price setting mechanism is largely dictated by the existing demand and supply without the sole benevolence of one party and the selling transactions are made on the basis of both cash and credit.

Market performance: The performance of a given market is largely dictated by its structure and conduct and is usually verified by the use of margin analysis. In order to describe the market performance of hot pepper using the margin concept, the following routes of hot pepper have been identified from the existing market channel.

- Channel 1: Producers -----consumers
- Channel 2: Producers-----local retailers----consumers
- Channel 3: Producers-----local retailers---wholesalers in Jima---wholesalers in Addis-----retailers in Addis---consumers
- Channel 4: Producers----local collectors----local retailers----wholesalers in Jima-wholesalers in Addis---retailers in Addis---consumers
- Channel 5: Producers---local collectors---local wholesalers---wholesalers in Jima-wholesalers in Addis----retailers in Addis----consumers
- Channel 6: Producers---local collectors---local wholesalers---wholesalers in Addis-retailers in Addis----consumers
- Channel 7: Producers---local collectors---local wholesalers---retailers in Jima Addis
- Channel 8: Producers---local collectors ---local wholesalers---retailers in Addis-consumers

Table 4: Gross marketing margin of participants in hot pepper market chain

		Values of gross marketing margin (%)							
Market participants	Selling prices (Birr kg^{-1}) 1 USD = 17 Birr	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8
Producers	32.0	100	68.2	42.7	42.80	42.8	42.8	53.36	42.8
Local collectors	46.0	-	-	-	18.60	18.6	18.6	23.30	18.6
Local wholesalers	51.5	-	-	-	-	7.3	7.3	9.17	7.3
Local retailers	46.5	-	31.2	19.3	0.67	-	-	-	-
Wholesalers in Jima	55.0	-	-	11.3	11.30	4.7	-	-	-
Wholesalers in Addis	65.0	-	-	13.3	13.30	13.3	18.0	-	-
Retailers in Jima	60.0	-	-	-	-	-	-	14.20	-
Retailers in Addis	75.0	-	-	13.3	13.30	13.3	13.3	-	31.3

Source: Calculated from survey result

Table 5: Cost and profitability of actors in hot pepper market chain

Revenue and cost items in Birr	Producers	Assemblers	Wholesalers	Retailers
Value of average gross sale	4,906.00	76,800	212,000	42,000
Cost of production				
DAP	395.25	-	-	-
UREA	275.87	-	-	-
Marketing costs				
Cost of packing	46.98	1,140	1680	570
Cost of loading	54.50	720	1960	360
Cost of transport	163.60	2400	8400	1200
Cost of unloading	54.50	720	1960	360
Total cost	990.70	4,980	14,000	2,490
Net average profit	3,915.30	71,820	198,000	39,510

Source: Calculated from survey result, 2011, 1 dollar = 17 Birr

On the basis of the above channel identified, the following table illustrates the gross marketing margin of each participant in the market chain.

As can be seen in Table 4, producers get the highest profit margin of 100 and 68.2% when they sell their product in channel 1 and 2, respectively where hot pepper is sold locally to the consumers. But when hot pepper is channeled to consumers in Jima and Addis Ababa, the producers' margin were found to be 53.3 and 42.8%, respectively making the respective total gross margin taken by intermediaries to be 46.7 and 57.2% out of which the largest share is taken by the local collectors without having a significant role in value addition. Therefore, with the assumption that their possible role in the creation of linkage can effectively be taken by the local wholesalers, banning of local collectors from the market can be taken as one option for improving the efficiency of the chain when the product is channeled to Jima and Addis Ababa.

Cost and profitability of actors in the market chain of hot pepper: In addition to the gross marketing margin analysis, net benefit analysis was also undertaken for the actors in the chain to examine the importance of hot pepper in the socioeconomic life of the people. Due to the shortage of reliable data, only actors in Gojeb are considered for this analysis as shown in Table 5.

As can be seen from Table 5, the net benefit analysis indicates that actors in the chain are getting a significant amount of average net profit from the production and sale of hot pepper and this in turn shows that hot pepper is playing a significant role in the socioeconomic life of the people in the region.

Problems in hot pepper production and marketing: The result of the study pointed out the following major bottlenecks of production and marketing by actors in the market chain of coffee.

Low productivity: Since producers in the area are all using local varieties, the productivity of hot pepper is low as compared to the local and international standards.

Low quality of hot pepper: Actors in the chain reported that farmers mix the hot pepper with water to increase its weight and benefit from the volume of sale and this contributed to the deterioration of the quality of the product.

Credit transactions: This type of transaction made actors to run in short of money since the borrowers sometimes fail to pay their credit on time.

Low and fluctuating price: The unanticipated market price fluctuation sometimes makes the selling price of actors to be low and equal to their purchase price and this in turn resulted in a low marketing margin and income of actors in the market chain.

Long market distance: The longer market distance for producers and other actors in the chain have resulted in incurring a large amount of transport cost.

The absence of road and transportation in the area also exacerbated the problem especially in the producers' market.

In addition, the local market places are very narrow and confined to accommodate the existing number of buyers and sellers especially in Gojeb area.

Problem of weighing: Producers boldly reported that there is an illegal act of cheating on weighing the product by the assemblers and retailers.

Act of unlicensed/illegal intermediaries: There are some unlicensed (illegal) intermediaries in the wholesalers market engaged in an illegal negotiation/transaction to sell hot pepper in the study areas and this in turn is adversely affecting the benefit that can be obtained by the legal actors in the chain.

CONCLUSION

The result of the study proved that hot pepper is currently becoming an important cash crop for supplementing the income of producers and other actors in the market chain. An increment in the proportion of land allocation was observed among producers in the last few years. Local Varieties called marco and kolesh are widely used by farmers in Omo Nada and Gojeb area, respectively with an average respective yield of 16.39 and 12.21 Q h^{-1} through using fertilizer and spacing technology.

The result of the investigation of the market structure revealed that there are assemblers, retailers and wholesalers working in the market chain of hot pepper. But the larger volume of sale (50%) is made by the direct sale of producers to the consumers followed by the volume channeled to the local assemblers (28.5%) and local retailers (21.5%). Value addition activities are almost absent and price setting mechanism is largely dictated by the existing demand and supply across the whole chain. The margin analysis indicated that producers relatively take the highest profit

margin followed by local assemblers in all the chains. Low quality of the product, low and fluctuating prices, illegal act of cheating on weighing the product, low productivity of local varieties, shortage of capital for financing the transaction, absence of enough research and technology, long market distance and the limited size of the local market place to accommodate the existing number of buyers and sellers are some of the major production and marketing problems in the area.

RECOMMENDATION

On the basis of production and marketing problems identified, the following recommendations are forwarded to boost production and improve the marketing so as to make producers and other productive actors benefit from the system.

Production: There should be a strong and coordinated effort to develop/generate improved hot pepper varieties through research which could have a better yield than the existing local varieties:

- A work on extension in the form of demonstration and training should be in place and further strengthened for the ease of adoption of improved agronomic/production technologies such as spacing and others in Gojeb area
- The local agricultural office should take the responsibility to provide fertilizer in adequate amount and with fair price since this can prevent farmers from the possible exploitation of other traders in the market and save their time and energy that can be wasted in looking for this input

MARKETING

- A legal action should be taken by the local trade and industry office on those actors who are involved in the illegal act of cheating on weighing the product. Furthermore, this legal action should extend to banning of some illegal/unlicensed intermediaries working in the chain to get the highest benefit through discouraging the legal actors
- There should be a system to reward a certain price premium for quality product provided to the market so as to encourage quality hot pepper production by producers and value addition by other actors in the chain
- A strong system should also be established to provide current and future price information on daily basis so as to help producers and other actors in deciding on when and at what price to sell their product
- The local administrative body should provide a better market place for hot pepper that has a better size and accessibility especially in Gojeb area. In addition, an effort should be made to maintain the existing road which takes the producers and other actors to their respective market place
- Producers' cooperative should be established and strengthened to increase the bargaining power of farmers and get advantage from the sale of their product

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REFERENCES

Abay, A., 2010. Market chain analysis of red pepper: The case of Bure Woreda, West Gojjam Zone, Amhara National Regional State, Ethiopia. http://www. ilri.cgiar. org/handle/10568/3023?show=full.

Berke, T., 2002. The Asian vegetable research and development center pepper project. Proceedings of the 16th International Pepper Conference Tampico, November 10-12, 2002, Tamaulipas, Mexico, pp: 1-16.

Bosland, P.W. and E.J. Votava, 2000. Peppers: Vegetable and Spice Capsicums. CABI Publishing, Wallingford, UK., pp: 1-16.

CSA, 2003. Ethiopian sample survey enumeration. Addis Ababa, 2: 382-385.

Cramer, G.L. and W. Jensen, 1982. Agricultural Economics and Agribusiness. 2nd Edn., John Wiley and Sons, USA, ISBN-13: 9780471093930, Pages: 465.

EEPA, 2003. Spice potential and market study. Ethiopian Export Promotion Agency Addis, Addis Ababa, pp: 103.

Musema, R., 2006. Analysis of red pepper marketing: The Case of Alaba and Siltie in the SNNPRS of Ethiopia. http://www.eap.gov.et/?q=node/809.

Rubatzky, V. and M. Yamguchi, 1997. World Vegetables. 2nd Edn., International Thomson Publishing, USA, pp: 553-562.

Singh, R.H., G. Seepersad and L.B. Rankine, 2007. The hot pepper industry in CARICOM: Competitiveness and industry development strategy. Department of Agricultural Economics and Extension, University of West Indies, St. Augustine.