AN ANALYTICAL STUDY OF THE PRODUCTION EFFICIENCY AND MARKETING OF CHAMOMILE CROP UNDER ORGANIC FARMING SYSTEMS IN EGYPT

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Abstract

The Study aim to identify the current production possibilities of chamomile in Fayoum governorate, besides, it has also estimate many economic measures and coefficients such as, net return per feddan, marketing margins, marketing channel, marketing efficiency and the breakdown of consumer pound. Moreover, it also estimate the return of invested pound and, examine the problems of production and marketing that face the producers .

A questionnaire had been carry out in 20 organic and conventional chamomile farms during the year 2013/2014.in Fayoum governorate, where over 74 % of the Egyptian chamomile is produced.

Keywords: *chamomile, organic Agriculture, conventional, marketing efficiency, production coast.*

Introduction

The main objectives of this study is reducing the marketing margin between farm price and retail price and economic aspects of organic chamomile production in the fayoum governorate, also identify the problems of both production and marketing that face the producers.

Comparative studies (Lampkin, 2004) of organic versus conventional systems are frequently used by researchers to establish the differences between the two systems in terms of yields and productions costs, as well as other aspects, like impacts on biodiversity, energy consumption, water demand and labor requirements. Some sties focus only on one crop, while other ones investigate entire systems. Some studies have lasted one year, whereas other ones have covered several years, to consider the effects of climate and market fluctuations.

Such studies are also useful to determine the level of subsidies for organic farmers, as in the European union and other neighboring countries.

In this research, only chamomile is investigated from marketing efficiency within the paradigm of conventional economics (Kahan, 2004).

Chamomile is one of the most popular and documented herbal medicines . it is used externally for wounds, ulcers, ulcers, eczema, and leg ulcers(salamon, Ghanavati and Khazei, 2010). Chamomile is also very much consumed as a tea or tonic to treat anxiety, hysteria, nightmares, insomnia and other sleep problems, convulsions and even delirium tremens (Garginer, 1999).

In Egypt, according to the ministry of Agriculture and land reclamation, in 2013 the total area of chamomile was 8763 fedden represented 13 % of total area cultivated with medicinal and aromatic plants about 74% of organic chamomile was in fayoum governorate.

About 35.9 % of chamomile in Egypt is nowadays organic. In 2013 the total area organic chamomile estimated at 3,150 fedden, which accounts for 45 % of total organic area of medicinal and aromatic plants. Organic chamomile in fayoum governorate, meaning 52% of total organic area in the governorate. Also conventional farmers are conscious that chemical and pesticides must be used carefully or totally abandoned, because exporters have

established high quality standards and the presence of residues may eliminate any chance of foreign markets.

Materials and methods

The study used the descriptive and qualitative methods such as ratio averages some economic measures like marketing efficiency and marketing margins, the breakdown of consumption pound, The study depended on the primary and secondary date form their available different sources in addition the designed questionnaire to achieve the objectives of study.

The study has been conducted in the fayoum governorate, where over 74% of the Egyptian organic chamomile is produced.(Ecoa, Ecoa, 2013).from Total area 3150 Feddan, average productivity1.100 dray chamomile. (Table-1)

Table (1) Area, Productivity and production of Conventional and organic chamomile during the period 2003-2013.

year	Organic chamomile[*]			Conventional chamomile[**]			Org. /conv. %
	Area (fed.)	Productivity (ton)	Production (ton)	Area (fed.)	Productivity (ton)	Production (ton)	
2003	570	0.750	427.5	7621	0.833	6348.29	7.5
2004	820	0.760	623.2	9813	0.954	9361.6	8.4
2005	860	0.800	688	9483	0.837	7937.27	9.1
2006	917	0.800	733.6	7284	0.827	6023.87	12.6
2007	1170	0.820	959.4	8776	0.832	7301.63	13.3
2008	1320	0.850	1122	9304	0.816	7592.06	14.2
2009	1435	0.860	1234.1	11502	0.843	9696.19	12.5
2010	1730	0.890	1539.7	10184	0.867	8829.53	17.0
2011	2200	0.910	2002	10038	0.858	8612.6	21.9
2012	2700	0.960	2592	11549	0.866	10001.4	23.4
2013	3150	1.100	3465	8763	0.925	8105.78	35.9

Source: [*]Egyptian center of organic Agriculture (ecoa).
[*] Center of Organic Agriculture In Egypt (coae).
[**] Ministry of Agriculture and land Reclamation, Economic Affairs
Sector, Agricultural Economics Bulletin, Different Volumes.

Table (2) linear model Area, Productivity, production of Conventional and organic chamomile during the period 2003-2013.

	items	Equation	t	R^2	F
Organic chamomile	Area	$\hat{Y}_1=97.582+239.4\,X_1$	9.626	0.91	92.6
	Productivity	$\hat{Y}_2=0.695+0.028\,X_1$	7.360	0.85	54.26
	Production	$\hat{Y}_3=177.13+262.6\,X_1$	7.311	0.85	53.45
Conventional chamomile	Area	$\hat{Y}_4=8237.2+207.6\,X_1$	1.755	0.25	3.08
	Productivity	$\hat{Y}_5=60.846+0.0024\,X_1$	0.560	0.034	0.314
	Production	$\hat{Y}_6=6998.4+194.4\,X_1$	1.719	0.25	2.956

Source: Table (1)

Table (2) shows coefficient of determination (R^2) reached 91% of total deviation in value dependent variable (organic chamomile area) explained Linear relations for regression model , 9% another factors. also (Table-2) shows There is significant increase in the organic chamomile area which was about 239.4 fedden a year.

All small farmers sell the chamomile as green flowers and they do not have access to foreign or local markets directly, but sell their output at farm gate price to private companies. All farmers hire permanent and seasonal workers. A questionnaire has been carried out to collect two types of date (i) general characteristics of the selected farms (location, total area, chamomile area, buildings and machinery, etc.) and (ii) economic data (production, marketing cost, prices, cost of marketing services, etc.)

Date were collected for about eight-months starting by mid September 2013, to may 2014, when the chamomile growing season ends. Each farm was visited several times to check the progress of the crop and to meet the farmer.

The formula used to calculate the gross margin for each farm has been the following one.

- Gross margin = Total value of output – Variable costs

The profit per feddan has been calculated with the following formula.

- Profit = Total value output – (variable costs+ fixed cost)

For evaluating the organic chamomile marketing efficiency, have been calculated as follows:

- Total Marketing margin (%) = ((Retail price(RP)- farm price(FP))/ Retail price)*100
- Marketing efficiency = 100 – ((marketing cost/ (marketing cost+ production cost)) *100
- Farmer share (%) = (Farm price/ Retail price)*100
- Wholesaler share(%) =((Wholesaler price (WP)- Farm price)/ Retail price)*100
- Retail share (%) = ((Retail price- Wholesaler price)/ Retail price)*100

Results and discussions

To Study the marketing efficiency for organic and conventional chamomile must studying the production and marketing costs.

1- Production cost for organic and conventional chamomile

Production costs (also called operating costs) are the expenses necessary to maintain a plant (Table-3)

Table 3 shows organic farms have higher variable cost, because the organic fertilizers (compost) are much more expensive, represent 31.4% of the total cost. Similarly chemical Fertilization for Conventional chamomile represent 19.5 % of the total cost. Also there increase in total cost of organic chamomile about 27.5 %, total cost for Conventional chamomile.

Table (3) . production cost for Conventional and organic chamomile at season 2013/2014.

items	organic chamomile		Conventional chamomile	
	production cost	% of total costs	production cost	% of total costs
Rent	2400	33.7	2400	39.1
Registration cost	300	4.2	-	0.0
Soil preparation	450	6.3	450	7.3
Fertilization	2240	31.4	1200	19.5
Fertilizer vital	500	7.0	-	0.0
Pest and disease control	400	5.6	600	9.8
Weed control	600	8.4	600	9.8
Transplanting	340	4.8	340	5.5
Irrigation	400	5.6	400	6.5
Seedlings	200	2.8	150	2.4
Total cost	7830	100.0	6140	100.0

Source: Questionnaire 2013/2014.

Economic indicators for organic and Conventional chamomile
Table (4)showed that a very good profit for was 8370 L.E/fedden dry flowers for organic chamomile compared net profit of Conventional chamomile which was 5860 L.E/fedden dry flowers, 42.8 %. An increase for organic chamomile price than Conventional chamomile price. Also there are improve in productivity organic chamomile by12.5 %, about Conventional chamomile.

Table (4). Economic indicators for organic and Conventional chamomile at season 2013/2014.

items	unit	organic chamomile	Conventional chamomile
Productivity (dry)	ton	0.900	0.800
Price per kg fresh	L.E	18	15
Total value of output	L.E	16200	12000
Net profit	L.E	8370	5860

Source: Questionnaire 2013/2014.

2- Marketing cost
Table (4) Shows that total marketing cost for organic chamomile reached about 3205 L.E, costs of flower collection and harvest represents about 62.4 %, from Total marketing cost, and processing costs about 11.5%. from total marketing cost. While total marketing cost for Conventional chamomile reached about 2680 L.E, flower collection and harvest represents about 67.16 %, from Total marketing cost, and Packaging costs about 10.45 %. from total marketing cost.
The organic product interested in marketing services and high quality of Packaging type, processing, drying to prevent product Contamination.

Table (5). marketing cost for organic and Conventional chamomile in fayuom governorate during season 2013/2014.

items	Organic chamomile		Conventional chamomile	
	Value (L.E/Feddan)	% from Total Marketing cost	Value (L.E/Feddan)	% from Total Marketing cost
Flower collection costs	2000	62.4	1800	67.16
Drying costs	290	9.0	200	7.46
processing costs	370	11.5	250	9.33
Packaging costs	365	11.4	280	10.45
Transportation costs	180	5.6	150	5.60
Total marketing cost	3205	100	2680	100

Source: Questionnaire 2013/2014.

Marketing margin:

The marketing margin (Thomsen F.L 1951) of a product or service is the difference between the retail or selling price of the product and the actual cost it took to produce that product. The production costs take into account the average unit cost in terms of operating expenses, manufacturing and packaging. The retail price or selling price reflects the mark-up on the cost of producing that product.

Total Marketing margin(%) = ((Retail price(RP)- farm price(FP))/ Retail price)*100

Total Marketing margin of organic chamomile(%) = ((27-18)/27)*100 =33 %.

Total Marketing margin of conventional chamomile (%) = ((21-15)/21)*100 =28.6 %.

The marketing margin were 3&6 L.E for wholesalers and retailers respective Table (6), while the price spread was about 9 L.E for organic chamomile, also marketing margin were less about 2&4 L.E for wholesalers and retailers respectively, while the price spread was about 6 L.E for Conventional chamomile represent, 50 % from organic chamomile.

Table (6) .Marketing margin for organic and Conventional chamomile

item	farm price	Wholesalers price	Retail price	Marketing margin		
				Wholesalers price - farm price	Retail price - Wholesalers price	Retail price -farm price
organic chamomile	18	21	27	3	6	9
Conventional chamomile	15	17	21	2	4	6

*price L.E/Kg

Source: Questionnaire 2013/2014.

Marketing Efficiency

Marketing efficiency is the ratio of input and output, An increase in this ratio represents improved efficiency, A decrease denotes reduced efficiency (Sheth et al. 2002)

Marketing efficiency = 100 – ((marketing cost/ (marketing cost+ production cost)) *100

Marketing efficiency of organic chamomile = 100- (3205/(3205+7530))*100 = 70.1%.

Marketing efficiency of conventional chamomile = 100- (2680/(2680+6140))*100 = 69.6.%.

Marketing efficiency represented about 70.1 % for organic chamomile, while Marketing efficiency represented about 69.6 % for Conventional chamomile, which indicates efficiency of the marketing services, during the marketing channel.

Breakdown consumer pound

Table (7) shows Breakdown consumer pound between farmer and marketing (Wholesalers and Retail)

Table (7). Breakdown consumer pound for organic and conventional chamomile.

item	Farmer share	Wholesaler share	Retailer share
organic chamomile	66.7 %	11.1 %	22.2 %
conventional chamomile	71.4	9.4	19.0

Source: Table (5)

The share of farmer, wholesaler and retailer from consumer pound for organic chamomile represented was 66.7%, 11.1%, 22.2% respectively. While The share of farmer, wholesaler and retailer for consumer pound for conventional chamomile represented 71.4%, 9.4%, 19.0% respectively

The point of view and the opinions of interviewers which related to the designed questionnaire indicated that the major problems were: Increase in collection costs. Increase of chemical analyses price. Increase of fertilizes prices. Increase of both production and marketing costs. Finally the low capability of finance resources for most small farmers, besides the low offered credits and loans, and increase of interest rate for the nongovernmental credits.

Conclusions

Recommendations can be illustrated as follows:
1. launch an extension campaign to attracting small farmers to cultivate organic chamomile due to the highly local marketing and exporting returns.
2. Both governorate agencies and marketing cooperatives must work together to establish factories for drying organic chamomile to increase the value chain.
3. To make the finance and credit more available to encourage cultivation and marketing organic chamomile.

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