

SOCIO-ECONOMIC IMPACT STUDY OF THE NATURALS

ROSE

THIS REPORT IS PART OF A SERIES OF REPORTS BEING PRODUCED BY THE IFEAT SOCIO-ECONOMIC SUB-COMMITTEE ON THE IMPORTANCE OF SPECIFIC NATURALS TO THE LIVELIHOODS OF THOSE INVOLVED IN THEIR PRODUCTION.

INTRODUCTION

There are four major species of rose plants which are cultivated for industrial applications:

Rosa Damascena Miller • *Rosa Centifolia* •
the lesser white coloured *Rosa Alba* • *Rose Rugosa*.

Today, we can locate production in Iran, Afghanistan, China, Bulgaria, Turkey, Morocco and India. In Morocco, Damascena is the variety that is mainly cultivated, while in China the Rugosa variety yields a very different quality than the more significant damascena oil upon which this report will focus.

In essence, this report will impart no new knowledge about the various productions around the world but will compile and summarise the excellent work by Peter Greenhalgh, Hasan Ali Kinaci, Liat Murad Barbut, F. H. Giryel, M. C. Omerci Kartin, Juliana Ognyanova and Primrose Wilson. Others will also be noted in the bibliography.

The figures on each of these regions are at best tenuous approximations. The two most significant regions for *Rosa damascena* continue in their historical centres: Turkey, primarily in the region surrounding the city of Isparta in the southwest part of the country, and the Valley of Roses centred around the Stara Zagora and the Plovdiv areas of Bulgaria. In both regions we have the Ottomans (who controlled these regions until Bulgaria's independence in March of 1878) to thank for the impetus for planting and production.

TURKEY

Although roses, per se, and rose oil have for centuries figured prominently in Anatolian culture, the first commercial rose oil distillery plant was commissioned only in 1934/1935. "Rose oil production is a really tough and labour-intensive activity

carried out by family farms without high-income expectation. Although because of all these challenges, rose oil production still exists because it is a traditional local product and a part of cultural heritage, and provides a certain income to its producers," Givag and Kant clearly state in their 2010 report¹. At that time, there were some 10,000 families involved in the production of ca. 1,400 kg of oil. Most rose flower production comes from smallish family plots of less than a hectare which supply numerous distillation facilities². One would say that in the past eight years the production has increased in conjunction with demand and significantly higher prices.

The six major distillers who produce +/- 65% of Turkey's oil are Sebat United, Gulbirlik, Robertet, IFF, Ercetin and Biolandes. Between eight and ten other companies comprise the balance. Each year some 7,000-8,000 MT of roses are converted to oil (1,400 kg) and rose concrete, and subsequently absolute (6,000 kg and 1,000 kg respectively in 2013)³. Based on 2017 numbers one can extrapolate the value of this business to be approximately:

1,400 kg oil @ \$11,000.00 kg	=	\$15,400,000
10,000 kg concrete @ \$1,364.00 kg	=	\$13,640,000
5,000 kg absolute @ \$3,220.00 kg	=	\$16,100,000
		Total: \$45,140,000

This is supporting 10,000 families, that is, +/- 45,000-50,000 people plus more than 15 factories and countless exporters⁴.

BULGARIA

Similarly to Turkey, rose growing dates back to the Ottomans who built upon an existing culture of over 350 years; it can be assumed that the rose plants were brought to Europe by returning Crusaders from Persia. With the collapse of the



communist system in +/- 1992 the government centralised Bulgarska Rosa organisation splintered into numerous privately held companies. There is some concern that the quality/yields may have deteriorated since this time; the state-run organisations closely controlled the nursery feed-stock and all aspects of production which resulted in a consistent quality from all of the growing regions. There is adequate evidence suggesting that this consistency has been compromised. That there has been the recent introduction of Rose Centifolia into Bulgaria, corroborates this disturbing fact.

Although there is a trend to larger rose plantations by several of the more significant distillers, more than 7,000 families in the mountainous and semi-mountainous areas - most of them coming from minority population groups - earn their income from essential oil plant cultivation. However, there has been an ever-increasing shortage of labour during the harvesting period, in part due to migration. Estimates are that there are more than 12,000 people who work in the rose industry year-round, while during harvest time in May to mid-June, weather depending, these numbers swell to some 40,000 pickers, harvesting around 3,500 to 4,000 hectares of rose plantations⁵. Since Bulgaria's entrance into the EU in 2007, new wage structures have put considerable stress on production costs. The availability of low-cost Romany labour cannot be overstated in mitigating more dramatic future price increases.

Using very loose approximations for 2017, we would guesstimate production to have been based upon a harvest of 11,000/12,000 MT of flowers:

+/- 2,400 kg oil @ \$11,000 kg	= \$26,400,000
+/- 2,000 kg concrete @ \$1,600 kg	= \$3,200,000
200 kg absolute @ \$3,000 kg	= \$600,000
Total:	\$30,200,000

PRODUCTION IN OTHER COUNTRIES

Historically, Iran may be one of the first producers of rose oil, though rose water is their signature product. This precious rose water, so culturally important to this country, was first produced by the Persian physician, Avicennia, in the 10th century. Damask Rose is commonly called the Flower of the Prophet Mohammed figuring prominently in holy as well as medicinal contexts.

It is reported that some 13,000-15,000 hectares are tended by some 500 farmers (this number seems too few perhaps); the numbers are not available as to how many people are involved with the actual harvest and production. As in Bulgaria and Turkey, these farms are generally small land holdings centred around the major producing areas of Kashan, Keman, Shirz and Kerminshah. The production of oil may be only 200 kg annually but the production of rose water is massive, +/- 75/85 m litres⁶. Significant inflation resulting from economic sanctions has already affected price and production, though most of their crop is consumed internally rather than exported.

Morocco is an important producer of predominantly Rosa Damascena. Annual production is approximately 2,000 MT of flowers employing 6,000 small farmers. In 2017 rose petal prices were +/- US\$ 1.80 kg with the women pickers being paid \$0.40 per kg for their labour⁷. Their major production is of concrete, rather than oil.

Rose cultivation in China dates to the 13th century with Mongolians of the Yuan Dynasty and then French missionaries in the 18th century. Production today is primarily in the higher altitudes of Yunnan Province. It is perhaps, in the past 12-15 years that commercialisation of their production has been organised. Rose oil and important quantities of rose water are produced for the cosmetic industry. Production in 2017 has been estimated at +/- 700-800 kg of Centifolia oil⁸.

The IFEAT Study Tour in 2014 visited the Yunnan Heng Feng Rose Perfumery Company which has been mainly working with the Rugosa variety; however, in the past five years there have been plantings of Rosa Rugosa with promises of increases to come. The oil which we have seen from China does not yet compare favourably with Bulgarian or Turkish oil. Give them time. Figures on people involved and costs are not available.

India also produces rose products. It has been suggested that rose production dates to the 16th century during the Mughal Empire. Today ca 2,500-3,000 hectares of Rosa damascena are under cultivation from which +/- 200 kg of oil and larger quantities of rose water are produced. The oil compares favourably in composition to Bulgarian oil⁹.



The most interesting new production is happening in Afghanistan since about 2010 when German economic and a German NGO, German Agro Action interests, and U.S. aid programmes began funding the project. The aim was to employ similar farming techniques on plants to replace the production of poppies/heroin.

There are perhaps as much as 3,000 hectares planted; some certainly with materials supplied from Bulgaria. The equipment is alleged to have been supplied by Turkish producers for two or three distillation facilities. As much as 100-120 kg of oil is likely finding its way to Europe¹⁰. Dated information suggests that more than 400 farmers are involved in the dangerous area of eastern Afghanistan.

Rose oil, rose concrete/absolute and rose water are used in a wide variety of consumer products. Cosmetics, perfumes, food flavouring, religious incantations and aromatherapy are a few using this "Queen of Oils". Many thousands are involved in its manufacture while millions enjoy its splendour. And, it is of significant economic importance to these producing areas and their populations.

BIBLIOGRAPHY

- ¹ Giray, F H, and C Omerci Kart. "Economics of Rosa damascena in Isparta, Turkey." *Bulgarian Journal of Agricultural Science*, vol. 18, no. 5, pp. 658-667. 2012.
- ² Kinaci, Hasan Ali. (2010, September). *Essential Oils of Turkey: Cultivation, Industry, and Trade*. Paper presented at the IFEAT International Conference, Marrakech, Morocco. *Conference Proceedings*, pp. 105-117.
- ³ Barbut, Liat Murat. (2014, September). *An Overview of the Essential Oils Industry in Turkey*. Paper presented at the IFEAT International Conference, Rome, Italy. *Conference Proceedings*, pp. 147-155.
- ⁴ Ibrahim Isidan (personal communication, May 10, 2017)
- ⁵ Peter Greenhalgh (personal communication, August 30, 2017)
- ⁶ Primrose Wilson (personal communication, April 28, 2017)
- ⁷ Jalal Charaf (personal communication, April 27, 2017)
- ⁸ Peter Greenhalgh (personal communication, June 26, 2017)
- ⁹ Shawl, A.S. and Robert Adams (2009, July) *Rose Oil in Kashmiri India*. *Perfumer & Flavorist*, 34, 22-25.
- ¹⁰ Dominique Roques (personal communication, May 8, 2017)

Country	Rose Variety	Area Devoted to Production	Essential Oil Produced (Metric Tons)	Work Force	2017 Petal Price / Oil Price per kg	Concrete Produced (Metric Tons)	Rose Water Produced (Metric Tons)
Bulgaria	Damascena	4000 ha	1.5-2.4 MT	35000 Pickers	2.20Лв ³ / \$11000	c. 2 MT	300 MT
Turkey	Damascena	2000 ha	1.4 MT ¹	10000 Families	7.50Kr /	10 MT @ \$1364	> 80 MT
Morocco	Centifolia	-	2000 MT Petals	6000 Farmers	1.80 MAD ⁴ /	6-6.5 MT	-
Iran	Damascena	13000-15000 ha	.2 MT ²	500 Farmers	-	.075-.085 MT	-
China	Rugosa	-	.7-.8 MT	-	/ \$8750	-	-
China	Damascena	-	-	-	/ \$10000	-	-
Afghanistan	Damascena	3000 ha	.1-.15 MT	400 Farmers	-	-	-
India	-	2500-3000 ha	.2 MT	-	-	-	Significant

1 - Based on 7000-8000 metric tons of petals
 2 - Based on 40-45 metric tons of petals
 3 - Bulgarian Lev
 4 - Moroccan Dirham