

VITICULTURE IN TURKEY

Ibrahim UZUN, A. BAYIR

Akdeniz University, Faculty of Agriculture, Antalya, Turkey
uzun@akdeniz.edu.tr

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Abstract: Turkey is one of the main producers of grapes in the world. It is at sixth rank in grape production with 4 million ton and 550.000 ha production area. It is the biggest exporter of raisin grapes. Each year over 200.000 tons golden coloured raisins is exported all over the world. Table grape export is 170 000 ton valued at 133 million \$.

INTRODUCTION

Turkey and eastern neighbour countries known as Asia minor are the motherland of grapevines. Grapes is cultivated since 8th century BC in this area. A neo-Hittite rock-cut relief in İvriz, in South central Turkey shows that grapevine was well known fruit in ancient Hittite civilization. The rock relief depicts the late 8th century BC (ca 730-710BC). Tabalian (Tuwanuva) King Warpalawas and storm or fertility-God Tarhunzas is accompanied with grapes, wheat and hieroglyphic Luwian inscription. The relief express the thanksgiving of Warpalawas to the God Tarhunzas[1].

Turkey is located in the northern hemisphere between the 36°- 42° northern parallel and it is one of the mediterranean countries. Because of favorable ecological conditions grapevines can be grown all over the country.

Turkey ranks sixth in world grape production with 4 million tons. The area under cultivation is about 550.000 hectare. It produces 6 percent of fresh grapes of the world. Turkey is the one of the gene center of grapevines, for this reason it possesses over 1200 grape varieties. About 37 % of fresh grapes grown in Turkey goes into juice and other local consumptions such as köfter, sucuk, pekmez, 3 % into wine, while 27% is sold as table grape and 33% is dried as seedless (raisin) and seeded grapes.

GRAPE CULTURE

Varieties

The following rootstock varieties are prominent in Turkey: 5BB, 99R, 110R, 41B, Rupestris du lot. Bench grafting is a common method of producing vinifera grapes on resistant rootstocks to phyloxera and nematode. Nearly all grape varieties grown in Turkey are european-type grapes (*Vitis vinifera*) but *vitis labrusca* can also be grown in a small amount in coastal side of Black Sea region in northern Turkey.

Irrigation

Most of Vineyards in Turkey is unirrigated or rarely irrigated because of lack of irrigation system or water. In irrigated vineyards furrow method is common. But nowadays drip irrigation system is getting popular because of the governmental support for modern irrigation techniques.

Spraying

Powdery mildew is the most widespread and serious fungus disease of grapevines in Turkey. Downy mildew, botrytis rot, eutypa dieback, phomopsis are other damaging fungus diseases. Nematodes are very common in irrigated vineyards in river banks. Grape berry moth, Thrips, erinose, grape mealy bug are widespread pests in Turkey.

Fertilization

Vineyard soils are quite poor for organic matter in Turkey. Using manures and cover crops is not common practise in vineyards. Mineral fertilizers are mostly applied to vineyards for nutrient deficiencies.

Training systems

Most of vineyards are head-trained and spur-pruned. But new plantings have trellis systems. Two wire or three wire flat-top trellis is common for cordon trained and spur-pruned vines. Sultana grapevines are cane-pruned and have T or Y-trellis systems.

Yield

Planting distance is mostly 3x2.5 meters. Annual production per hectare is mostly changing between 10 ton for poor fertile soils with unirrigated vineyards or wine grapes and 40 tons for very fertile soils. But 15-20 ton is common yield for vineyards.

HARVESTING AND MARKETING

The proper time of harvest is dependent of the usage of grapes. Sultanas is harvested at 22-24 degree brix for raisin and 18-20 degree brix for table grapes. Acidity is generally low in Turkish grapes because of high temperatures during summer season. Table grapes are mostly harvested at 14-20 degree brix depending on the cultivars.

Dry and warm weather is suitable for drying of sultana grapes in Aegean region. After harvesting, sultana grapes are dipped to alkali emulsion with olive oil for accelerating drying. Then grapes spread on concrete floors or trellis systems. When the top layer of berries browned and shriveled nearly one week later, the grapes are turned upside down. After 2 weeks light coloured (golden coloured) raisins are obtained. After that raisins are stemmed and filled to sacks and are sent to packing houses for cleaning sorting and packaging in small quantities. Raisin production in Turkey is nearly 300 000 tons and 90% of them exported to over one hundred countries in the world [Table 1 and 2]. European countries are the main importer of Turkish raisins [Table 3].

Table 1

Turkish raisin production by years(3)

Years	Production (tons)
2004	295.000
2005	242.000
2006	256.000
2007	220.000

Table 2

Turkish raisin exports by years (3)

Years	Quantity (tons)	Value (million \$)
2004	212.000	231
2005	226.500	240
2006	244.200	290
2007	240.600	317

Table 3

Turkish raisin exports by countries in 2007 (3)

Rank	Quantity (tons)	Value (million \$)
U.K	63.300	85
Netherlands	40.300	53
Italy	32.400	42
France	18.965	27
Australia	16.500	21

Table grapes are directly sell at markets after harvesting but some of late ripening cultivars are stored until january. Table grape export from Turkey is gradually increasing each year [Table 4]. . Russia, Ukrain, Germany are the main importing countries for Turkish table grapes.

Table 4

Table grape export from Turkey (2)

Years	Quantity (ton)	Value (million \$)
2006	152.750	85.212
2007	172.140	133.020

Wine consumption and production is quite low in Turkey because of religion. Only 3 % of total grape production is used for wine making with 70 million liters [Table 5].

Table 5

Wine production in Turkey(4).

Years	Production (million litres)
2001	47
2002	48
2003	51
2004	57
2005	70

Beer and Raki are the most popular alcoholic beverages in Turkey. Raki has a high content of alcohol with 45% which is obtained by fresh grapes or raisins [Table 6]

Table 6

Production of alcoholic beverages in Turkey (2007)

Beverages	Quantity (million litres)
Beer	905
Wine	70
Raki	50
Vodka	4
Cognac	0.7
Liqueur	0.6
Gin	1.5
Whisky	0.1

CONCLUSIONS

Turkey will continue to acting an important roles in grape production and raisin exportation in the world because of its favorable ecological conditions and large amount of production areas. Productivity and quality of grapevines will be improved in Turkey by using modern irrigation systems and management techniques. Its geographical situation and ecological conditions will offer to Turkey many advantages for marketing of fresh and raisin grapes in the world in the future.

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