



Perspective Grape Production Development in Kyrgyzstan

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Abstract

This research shows grape production of different varieties from Italy, planted in the northern shore of Lake Issyk-Kul namely in Chok-Tal and Kara-Oi villages. These varieties used in the wine production in Italy and possess high reputation among the wine growers and wine producers. The climatic conditions of Italy, Florence are about the same with the Chok-Tal and Kara-Oi. Only altitude here plays a role. In both locations climate is marine. After the collapse of the Soviet Union grape production was not paid enough attention. Acidity, Alcohol and Brix were analyzed. On the altitude of 1500 meters above the sea level grape plants from Italy were planted and the results of the above mentioned grape plants showed parameters in the tables bellow compared with the Italian results. Climatic conditions of the region taken from the climate research implemented during the Soviet Time. This data information is still used for the agronomic practice management. The uniqueness of the work is that for the first time in the country foreign varieties were planted on the above mentioned altitude and it has chemical parameters necessary for the wine production.

Keywords: *grape production, climatic resources, agriculture landscape, ecologic tourism*

INTRODUCTION

In 1985 was program called “Anti-alcohol” which destroyed a lot of grape plants. After the completion of this program grape production sub sector was totally ruined. Since last five years it started to develop and shows interests among the farmers to cultivate the grape plants.

In Europe, the highly assessed vineyards, and their price ranges from 150-200 thousand. Euros per 1 ha of land and all the grapes already sold wineries. At the same return on investment in a decade increases by an order, i. e 10 times. Yes, Europe's long-established marketing and processing of products winegrowers (quality wine products), and in Kyrgyzstan no wine that is why it develops very slowly and increasing demand is met mostly foreign wine (Moldovan and Georgian) despite the low quality.

Today, the CIS countries, specializing in the wine production recognized leaders in Moldova, Georgia, Armenia, Russia (Crimea), and Azerbaijan, as well as wine-growing developed republics of Central Asia.

The largest wine producer in Asia is Turkey, which gives an average of 3.5 mln. tons of grape berries a year. It shares in the pan-Asian production of grapes is 35%. The plantations are located in the area of about 665 thousand. ha. Of the 35% of the total harvest fruit used for drying, 35% - to the concentrated juice, 25% - by the use of fresh and 5% - for the production of wine.

The important production areas sultanas and raisins are considered Izmir and Manisa. The main varieties are drying Souitanina and Carabournou (Dattier de Beyrouth). Production of raisins and sultanas reaches 350 thousand tons per year. Part of the production is exported. Table grapes (varieties Izmir © Razakissi, Kara Aladja, Kara Bourdjou, Mouhammediye, Nimet, Ovezi et al.)

Are used domestically and exported. The average yield - 5 t / ha. Because wine grapes are grown Ahmete Bey, Bogazkere, Gueukousum, Deukulguen, Tokmak, Khassandede and others.

Against this background Kyrgyz viticulture industry remains forgotten and have not received the revival after the devastating anti-alcohol campaign in 1985. Although soil-climatic conditions of Chui, Fergana, Talas valleys of the country are favorable for the cultivation of valuable varieties of grapes. Before the anti-alcohol company with 10 thousand. Hectares of vineyards in Kyrgyzstan gathered 70-80 thousand. Tons of valuable grape production per year and they are processed in the Kyrgyz champagne wine industry and worked in the field of wine shops and plants.

METHOD AND RESULTS

It was famous outside the country in the markets of the former CIS countries and the Countries of the Economic Union (CEU) and the Kyrgyz brandy champagne.

Today in Kyrgyzstan lost production cycle from raw material base to the processing of products of viticulture. Our country, which has favorable soil and climatic conditions, the experience of cultivation of vineyards and winemaking, depends on the import of wine and cognac products (Table 1).

Table 1 Square cultivation and collection of products with the vineyards of the Kyrgyz Republic

Years	Area hectare	Yield hundredweight per hectare	Grand Yield in ton
1980	10,0	8,0	80
2010	6,0	7,5	4,5
2017 prognoses	6,3	20,7	13,0

Viticulture industry of the Kyrgyz Republic (KR) today is mainly specialized in the supply to the market of table and dried grapes.

With the joining to the Eurasian Economic Union (EAEC), the Kyrgyz Republic, a valuable export product could be a wide range of grape products. They will be needed for the wineries of the Russian Federation (RF).

At the moment the Russians are growing consumption of high-quality wines in the therapeutic and prophylactic purposes, and it is oriented to wineries of the Russian Federation and the EU.

If we occupy this niche in the wine market in Russia, it will give thousands of villager's high and stable income, will create the conditions for an intensification of joint processing enterprises and greater investment.

The revival of viticulture promise to domestic farmers great benefits and improves of agriculture landscape and ecology to the country.

However, there are companies like "Atalyk groups", which is planning the phased establishment of a single production cycle from raw material base to the processing of products, and it lays the vineyards in the central part of the Chui Valley. And they will not lose as red wines are useful in cardiovascular disease, thrombophlebitis and moderate consumption prolongs life by slowing down the aging process.

In Issyk-Kul oblast, there is a possibility due to the conversion of recreational services, especially tourism, an important sector of the economy in the future become one of the most prestigious resort regions of the world. For this there is a sufficient volume of the necessary components: a beautiful nature and natural resources. Agriculture and Forestry, the service sector, transportation and other industries in the area of the long term should be developed taking into account the maintenance of recreational facilities.

For the development of horticulture, viticulture and Walnut (table grapes) can use plain the central part of the northern Issyk-kul valley, which is characterized by the softness of the climate. Here is an opportunity to grow plantations of apple, pear, apricot, walnut, grapes, as well as a wide range of vegetables, cereals and alfalfa.

Today, the area under perennial plantations (gardens) occupied only 4921 hectares of land, which is very small for a resort-recreational region. For its expansion, you can use the slopes and stony ground, as well as deposits, which are embossed conditions are unsuitable for cropping. However, the use of drip and other innovative irrigation technology makes it possible to dramatically increase their growing area. Wide scope for the development of irrigated horticulture is stony gray-brown and light-brown soils of the Western Issyk-Kul region.

The climatic conditions of the coast of the lake (cool summers and mild winters) are ideal for laying nut plantations and viticulture. These capabilities are not currently used by the peasants and the state to create value for the resort and the region's agricultural landscape recreate with walnut and grape plantations.

While in the area there are no industrial plantation of walnut and grapes that bring big profits per unit area, and creates the environment agriculture landscape ennobling.

To ensure the holiday season table varieties (early-maturing varieties) grapes would be a tremendous increase in the area under vines in the north-central coast of the lake.

It is great practical interest in the experience of growing grapes in the northern Issyk-Kul region by Antinori (Italy). He proposed for cultivation in the central part of the northern coast the three grape varieties - Pinot, Riesling, Chardonnay.

Creation of vineyards in the Western and Central parts (north coast) improves agriculture landscape of Issyk-Kul region and creates conditions for the development of ecotourism, as well as serve to improve the domestic supply of table grapes of Issyk-Kul resort and recreational region.

Table 2. The requirement for the climate and productivity of grape varieties grown in the Issyk-Kul region

Grape varieties		
Pino	Riesling	Char done
Requirement to climate (the sum of effective temperatures, degrees)		
2600-2800	over 2800 degrees	2600-2800
Vegetative period		
130-140	over 145 days	130-140
Grape yield in Chok-Tal , kg/ha		
1000	3400	960
Grape yield in Kara-Oi, kg/ha		
1160	3970	1420

As can be seen, the yield of the young plantations of grapes is still low, and against this background, the Riesling grape variety shows 3400-3970 kg / ha of finished products.

Low yields vineyards Issyk-Kul region for the following reasons: lack of experience in viticulture, especially skilled care - regular system of tillage, fertilizer, irrigation, and a young vineyards.

Experience of Antinori Company showed that during the summer it is necessary to carry out irrigations and late fall watering give moisture-accumulation. After each watering the soil loosened advisable.

Figure 1. Riesling variety of grape.



Figure 2. Char done variety of grape.



Figure 3. Pino variety of grape.



It is advisable to once every 3 years for a vineyard to make organic fertilizer (manure) and annually - a major mineral deposit and fertilizing.

During the growing season of grapes grown in the Issyk-Kul recommended agronomic following operations:

- Green summer pruning, or - operations performed on the vine shoots during the growing season for the regulation of the above-ground parts of the bush and the root system, the ratio of yield and vigor of the bush;
- Breaking Trunk cleaner - an important farming techniques by which regulate the final load of fruit bush shoots and retain this form, i.e fragments - it is like a pre-summer pruning.

3-4 weeks before flowering, when it is clear beginnings show up racemes on shoots (10-15 May), begin to fragment fruiting and sterile shoots;

If breaking is done late and flowering, it is best to do it after flowering. -pasynkovanie

- Removal of young shoots growing from the leaf axils. Stepchildren are usually richly developed in the underload bush.

Shaping and pruning the vine. It is an important farming technique allows managing growth and fruiting bushes. Each vine in the first 3-4 years of life should be given a certain shape - to create a skeleton. Without this, the plant will not bear an abundant harvest of high quality fruit and caring for them will be difficult. By annual crop, this form is retained.

The partnership with Antinori, who has a six hundred year history of winemaking and the passage of scientific training in the vineyards and wineries of the company made it possible to compare the quality of grapes grown in Italy and of the Issyk-Kul basin (Table 3).

Table 3. Basic information of grape varieties in Italy and Issyk-Kul

№	Variety name	Brix	Possible,%		
			Acidity	Alcohol	Fermentation data by 15,0%
Cultivated in Montefelidolphy Italy (15.09.04)					
1	Pino	24,65	24,55	14,75	18
2	Chardone	23,85	23,6	14,15	20
3	Reasling	22,15	21,65	13,0	19
Cultivated in Kara-Oi					
1	Pino	21,1	18,5	12,0	Not determined
2	Chardone	22,5	10,5	13,2	Not determined
3	Reasling	19,0	19,5	10,8	Not determined
Cultivated in Chok-Tal					
1	Pino	16,5	14,75	9,5	Not determined
2	Chardone	20,0	13,2	11,5	Not determined
3	Reasling	17,0	15,4	9,5	Not determined

Terrurar - professional term that defines a set of natural factors affecting the production of wine and its taste. These features include the composition of the soil, weather and climatic conditions, even the flora and fauna of the region. This terrurar is called the product grown in a particular area, but in a controlled environment.

The wines produced from grapes grown in different parts of Kyrgyzstan, certainly will differ in taste, even if the berries were one variety.

By all indications - Brix, sugar, acidity and alcohol grape products from the village Montefelidolphiya Italy Antinori companies sharply higher than those grapes grown in Issyk-Kul. So, Brix - a measure of the weight ratio of sucrose dissolved in water to the liquid from grapes grown in the village of Pino Montefelidolphiya is 24.65%, which means that 24.65 g of sugar and 74 grams of water 35. These important figures of Italian grapes, pledge to obtain high quality wine and cognac products and they provide the image of the wine company of Antinori.

As you can see, cultivated grapes in Italy dramatically increase the performance of acidity and alcohol content, grape varieties of the Issyk-Kul region. Means grapes grown in the Issyk-Kul region is necessary for fresh eating, not for making wine of high quality products.

The above figures grapes mainly depend on climatic conditions and particularly the amount of active temperature.

Table 4. Air temperature information [kniga]

Meteostation	Sum per year	
	Over 10 degrees per year	Over 0 degrees per year
Balykchy	2295	2843
Cholpon-Ata	2224	2826

As can be seen, for the accumulation of sugar in the grapes is not enough amount of active temperatures above 10 degrees. The sugar in the grapes is good at accumulating the sum of active temperatures of over 3000 degrees.

SUMMARY

However, the beauty of this vineyard landscape is determined, in large part, by the great richness and variety of its geology, soil types, microclimates and topography, all of which could affect viticulture if we develop this sub sector in the country.

Our research shows that the entire technical process of growing grapes, written down to the details, must have a scientific basis. For example, a count of the number of sunny days, wind direction and nature of the grape seedlings at planting, and their adaptation to local climatic conditions, availability of shelter trees planted along the plantations, systematic analyzes of soil carried out by independent laboratories, irrigation system, etc. Against the background of

globalization of world markets and to make full use of soil, climatic and human resources of the Kyrgyz Republic should develop a state program for the development of viticulture, which will revive and develop wine growing country.

For this purpose should be carried out the following activities:

To develop a comprehensive perspective of events and priorities in the area of improving viticulture and winemaking;

To promote the preservation and development of the securities of domestic grapes and strain-testing areas, zoning of new productive varieties - fillokseriotype and frost, especially the Turkish grape varieties, taking into account climate- contribute to the preservation and development nursery bases for the production of certified planting material for the grape meet the needs of wine-growing, horticultural farms and the population of the Kyrgyz Republic;

The organization of work, aimed at synthesis, dissemination and implementation of viticulture farms and wineries of modern technologies and best practices.

This northern shore of Lake Issyk-Kul had never been considered as a place for the grape production. In this research study we showed possibility of the grape production in such altitude.

The viticulture of the country needs revival and its prosperous development in order to substitute country's import dependence from grape and indeed wine production. The scarcities of grape products make the country dependent of grape from different countries.

As an option bellow shown possibility to plant grape plants in the region.

The largest wine producer in Asia is Turkey, which gives an average of 3.5 million tons of grape berries per year. It captures in the Asian market 35%. The plantations are located in the area of about 665 thousand. ha. out of this 35% of the total harvest fruit used for drying, 35% - to the concentrated juice, 25% - in the fresh use and 5% - for the production of wine.

Annotation:

This vine production activity which was launched in Kyrgyzstan Italian grape varieties were shipped and planted as a pioneer project in Issyk-Kul namely Chok-Tal and Kara-Oi villages, in order to see the adaptation and feasibility study for the wine production between 2000-2004.

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