

“KVARELI”

WINE OF APPELLATION OF ORIGIN

Geographical location. Specific zone of “Kvareli” is located in the administrative region of Kvareli, in Kakheti, on the left bank of the river Alazani (Gagmamkhari), on the left bank of the river Bursa, in Kvareli administrative region, on southern slope of Kakheti Caucasioni. Its coordinates are as follows: northern latitude of 41°58´ and eastern longitude of 45°50´. It is located at 450 m above sea level. The foot of lowland is occupied by Alzani Plain, which elevates northwards, is transformed into the foothills zone and is adjacent to Caucasioni foot.

The Bursa and Chagurgulatskali, small tributaries flowing down Caucasioni create strong drifted cones at the point where they flow into the Alazani. The territory includes the villages of Kuchatani, Gavazi, Chikaani, Akhalsopeli and Mtis Dziri.

Climate. The weather is mainly formed by the air masses developed in subtropical and moderate latitudes and displaced from east to west under the influence of highland system. Due to the fact that the gorge of the river Alazani is open to southern-eastern direction and closed with mountains from all other sides, the air masses of northern-western and southern-eastern directions prevail here. Due to the fact that the gorge is closed in a special manner here the wind speed is not high.

Due to the above-mentioned processes, the given territory is characterized by moderately humid climate, hot summer and moderately cold winter.

The average annual duration of sunshine is 2050 hours, with the total solar radiation on the left side of the river Alazani less than that on the right side of the river. Annual amount of total radiation is 120 kcal/cm², with 97 kcal/cm² in the vegetation period. The sum of direct radiation is 51 kcal/cm², and that of the dissipated radiation is 46 kcal/cm².

Average annual cloudiness is 50-55%. In the periods of formation and ripening of grape bunches, the duration of the dome of the sky covered with clouds is not long (18-20 days), and the number of clear days is average constituting 15-16 days.

Average annual air temperature is quite high equalling to 12,5°. Average air temperature of the coldest month (January) is +1,0°, and that of the warmest months (July, August) is 23,6°C. The daily amplitude of temperatures in the warmest months is 8,5-9,5°, and that in September is no more than 8°. Annual amplitude reaches 23°.

Average of the annual absolute minimums of air temperature is -11°C, and the absolute minimum is -23°. Minimum temperature may fall to -16°C once in every 10 years.

Average of the annual absolute maximums of air temperature is 35°C, and the absolute maximum reaches 38°C. High temperature (>38°) damaging the vine does not occur in more than 5% of the years.

A stable transition of the air temperature above 10°C takes place on the 5th of April, and falling of temperature below the mentioned point takes place in the first five days of November (4.XI). So, the duration of the warm period is 212 days.

The first autumn night frosts start from November 21, on average. Once in every 10 years, early frosts, may take place at the end of October. The last spring night frosts in the specific zone on average end on the 26th of March. Once in every 10 years the spring frost may last until the middle of April what is a rare event.

Total of active temperatures ($\Sigma t > 10^{\circ}\text{C}$) on the given territories varies gradually within the limits of 4100-3700°.

Autumn is quite warm. Average temperature of September exceeds 19°C.

Following the peculiarity of the territory, in summer and autumn, additional warm air masses flow from the territory of Azerbaijan, through Iori Upland. Therefore, it is warmer here than on the right shore. This process is hampered in Kvareli by Tsitskaant forest ridge.

Average annual sum of atmospheric precipitations is 1070 mm, with the minimum precipitations (40 mm) falling in winter (January). The second minimum (81 mm) is fixed in August. Maximum precipitations (181 mm) fall in June, with the second maximum (90 mm) in September. 805 mm of precipitations out of the total amount fall during the warm period (IV-V) and 265 mm fall during the cold period (XI-III). The number of days with precipitation per year is 132. According to the annual indicator, the moisture balance is negative in the months of July-September. Up to 540 mm of precipitations fall during the fruit-growing period (15.IV-15.VIII). So, before flowering, as during the fruit formation and ripening periods, vine needs no irrigation except some exceptional cases.

Average relative humidity of air is 72%. Air imbibition is the least in summer (June, July, August) and equals to 66-64%. This indicator is relatively higher at the end of autumn and at the beginning of winter amounts to 80%. The annual number of the days with hail is 2,1 on average. May is the month with the most frequent hail (0,9 days). In April, June and July it hails equally during 0,3 days in each month.

A snow cover appears in the last decade of December (25.XII) disappearing in the middle of March.

Based on the relief, strong and intense winds are rare. The repeatability of windy days is 43%. Average annual wind speed is 1,2 m/sec. Wind speed is relatively high in March-April (1,5-1,4 m/sec). Average number of days with strong (>15 m/sec) winds is 26, with 6 of them in April and May and 4 of them in June. According to the meteorological office of Kvareli, winds of northern (28%), northern-eastern (16%) and southern (15%) directions prevail in the Region. The cold air masses flowing from high tops of the Caucasians at night, before sunrise intensifies the danger of winter frosts and spring night frosts.

Soils. There are varieties of alluvial soils spread in the region, which differ from one another by their skeletal structures, swamping and humidity. The soils are mainly formed and developed with the sediments drifted by the river Alazani and its tributaries – rivers Bursa, Shorokhevi, Avaniskhevi and Intsobi down the southern slopes of the Caucasioni.

There are 7 varieties of alluvial soils spread in the region:

- Alluvial calcareous of great thickness, loamy soil;
- Alluvial calcareous of great thickness, weakly skeletal loamy soil;
- Alluvial calcareous of great thickness, average skeletal loamy and sandy soil;
- Alluvial calcareous of great thickness, strongly skeletal loamy and sandy soil;
- Alluvial calcareous of great thickness, with the ground water standing from the depth of 80 cm, loamy soil;
- Alluvial non-calcareous of great and average thickness, with excess moisture, heavy loamy soil;
- Alluvial non- calcareous of great and average thickness, logged loamy soil.

The first four varieties of soils are characterized by great thickness of profile with more than 1 meter, and the thickness of the humus-containing active layer is 50-60 cm. Differentiation of genesis horizons in the soil profile is weakly developed. The soils are characterized by loamy texture. Lower layers of the soils of the third and fourth varieties are characterized by sandy texture. Unlike them, the soil of the second variety is characterized by weakly skeletal texture and the soil of the third variety has strong skeletal texture. The soils are characterized by loose structure. The soil of the fifth variety of characterized by the ground water standing from the depth of 80 cm, and by excess moisture from the depth of 50-60 cm. According to texture, it belongs to the group of loamy soils. The soil of the sixth variety is characterized by great and average thickness of profile varying between 70-100 cm, with the thickness of humus-containing active layer of 50-60 cm. It is characterized by heavy loamy texture and excess moisture. The soil of the seventh variety is bogged right from its surface.

The above-mentioned soils are mainly loamy, with sandy texture in some of the sections of the lower layers. The content of humus in the active layer of the soil (at the depth of 50-60 cm) is average or little varying within the limits of 1,5-3,5% with a low indicator everywhere in the lower layers. The soils are poor in hydrolysis nitrogen containing only 3,36-5,02 mg of them in 100 gr. of soil. In exceptional cases this indicator is average equalling to 5,3-7,2 g in 100 gr. of soil. The soils are very poor in soluble phosphorus not exceeding 1,23

mg in 100 gr. of soil. Phosphorus is mostly represented as a trace only. The content of exchange potassium is also low and constitutes 17,0-2,0 mg in 100 gr. of soil. The soils mainly do not contain calcium carbonates, which is represented in lower layers in insignificant quantities in exceptional cases amounting to 2,0-5,0%. Reaction of soil solution (pH) is neutral and weak alkaline and pH indicator is within the limits of 5,8-7,6. Sum of the absorbed bases (Ca+Mg) is low or average constituting 17,63-33,4 milliequivalents in 100 gr. of soil. Great proportion of the sum is the absorbed calcium, with manganese in less significant quantities.

Agro-technological regulations

In order to produce "Kvareli" wine, the following agro-technological regulations should be observed by considering the soil and climatic conditions.

Species of "Saperavi":

Growing area: Up to 750 m above sea level.

Plot of planting: 2,0 x 1,5 m; 2,5 x 1,5 m;

Height of stem: 80-100 cm

Form of pruning: Free and Georgian two-sided trellis.

Norm of loading per 1 m²: 8-10 buds.

Harvest: 7-8 tons per hectare.

Urgent measures

Rationing of high-yielding buds and tearing off the tips during the phase before flowering.

Soil cultivation

Autumn and spring plough of soil. Moisture-preservation measures - preserving the soil surface in a loose state (cultivation, milling, mulching). Ending the vegetation irrigation one month before the vintage.

Fertilization

Application of organic-mineral fertilizers under cartographic agricultural regulations.

Phyto-sanitary regulations

Principal diseases: Mildew, powdery mildew, grape rot.

Pests: Western grape worm, mealybug.

Pest and disease control measures: Using proper contact and systematic preparations registered in Georgia.

Economic-technological characterization of the species "Saperavi"

"Saperavi" - Georgian, color-grape wine species giving high-quality production. Wine made of Saperavi is of intense dark red color, with moderate content of alcohol and acidity, with rich and gay race and high taste properties.

The bunch is larger than average with the weight of 140-145 gr. The ripe bunch is of dark blue color, juicy and pulpy with pleasant sweet taste.

The grape ripens in the second half of September. The vine is stronger than of average grow. The harvest per hectare to gain the conditional production varies between 7-8 tons.

Sugar content of the ripe grape reaches 200-260 gr/dm³, with the acidity of 7,5-8,5 gr/dm³.

Wine "Kvareli" is high-quality controlled dry red wine of geographical appellation. It is made with the grape of species "Saperavi", with fully stopped must.

Wine "Kvareli" is characterized with dark red color, species-specific aroma, extractability, harmonicity and special race.

Chemical characteristics of the wine “Kvareli” should correspond to the following indicators:

Volumetric spirit-content, % - 10,5-12,0

Mass concentration of sugars of no more than 4 gr/dm³

Titrated acidity - 5,5-7,0 gr/dm³

Volatile acidity of no more than 1,2 gr/dm³

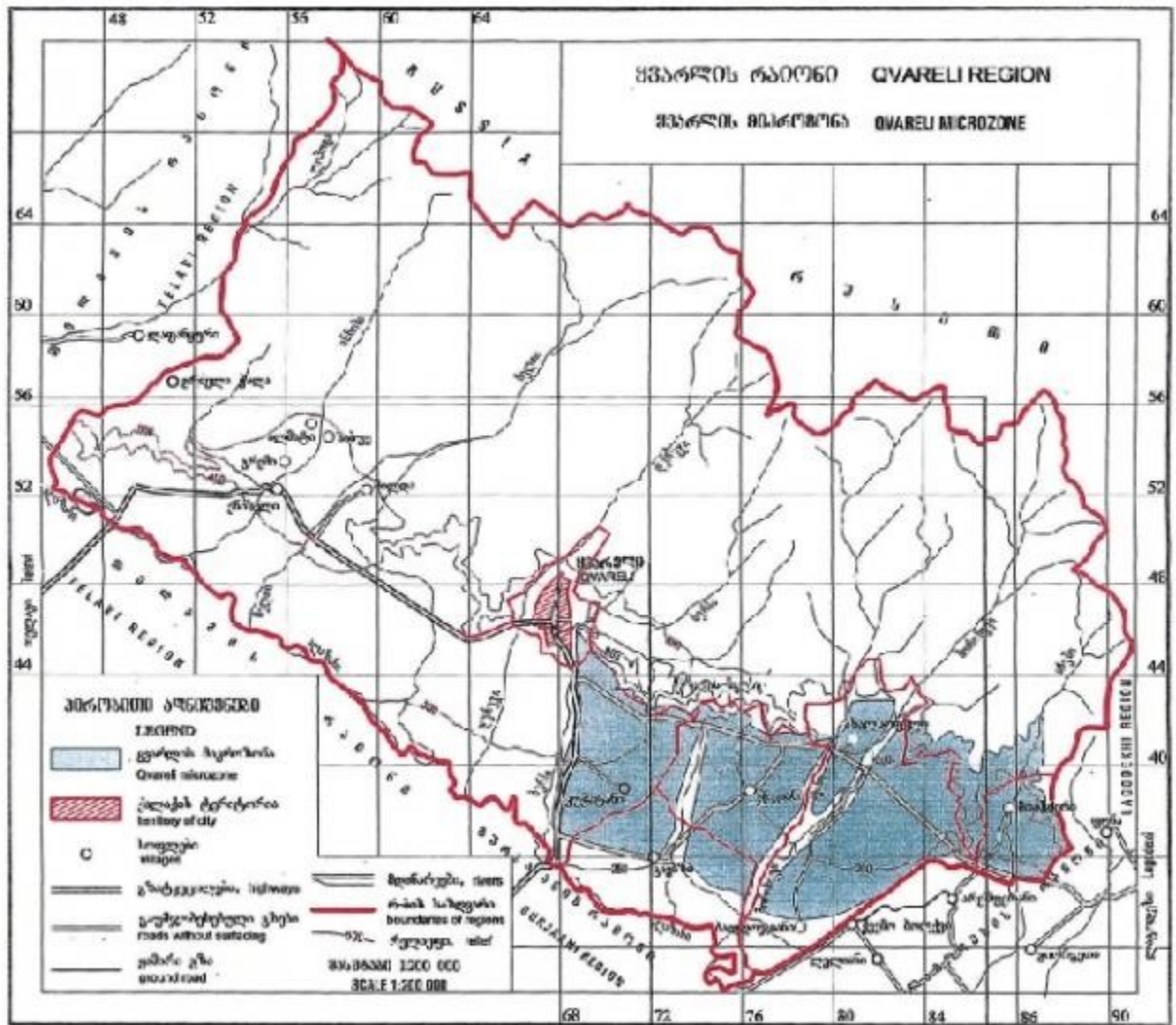
Mass concentration of finished extract of no less than 20 gr/dm³

The rest norms should correspond to the legislative acts of Georgia and the EU Directive No. 1493/1999 of May 17, 1999.

Area of specific zones

The area of the specific zone of “Kvareli” is approximately 100 km².

Unique properties of the species “Saperavi”, the microclimate created under the influence of the Caucasioni mountain range and the sediments drifted by the rivers of Bursa and Chagurgulatskali allow producing controlled high-quality dry red wine “Kvareli” of geographical appellation.



Source :
 National intellectual Property Center of Georgia
<http://www.sakpatenti.org.ge>