THE PROJECTION OF THE ANALYTICAL DATE BANK ASSOCIATED TO CONTROLLED APPELLATION OF ORIGIN WINE'S «MILLESIME» IN DEALU MARE-VALEA CALUGĂREASCĂ VINEYARD

PROIECTAREA BĂNCII DE DATE ANALITICE ASOCIATE MILEZIMEI VINULUI D.O.C. DEALU MARE - VALEA CĂLUGĂREASCĂ

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Abstract. *The "millésime" of a wine is defined as the year vintage of grapes from which the wine was obtained, the year associated and mentions of wine quality. In order to evaluate the quality of wine's vintage, the database associated to the controlled appellation of origin wine's "millésime" of Dealu Mare-Valea Calugareasca vineyard was designed. The informations to related wine's "millésime" were specific organized in a relational database type, in which all these informations were collected, inventoried and organized. The database is an homogeneous collection of databases, each database representing a way of the informations storing on hard disk, with rapidly retrievable information. Six databases were designed, namely: control plots, vineyard climate, wine phenology, and maturation of grapes, grape harvest and controlled appellation of origin wine production. The analysis of information associated to databases was performed by using specific methods (the comparison and the reference to normal "millésime" and/or based of same indicators) for each group.*
Key words: "millésime", database, data bank

Rezumat. *Milezima unui vin este definită ca fiind anul de recoltă al strugurilor din care s-a obținut vinul, anului i se asociază şi menţiuni privind calitatea vinului. Pentru a evalua calitatea anului viticol a fost proiectată banca de date asociată milezimei vinului cu denumire de origine controlată Dealu Mare-Valea Călugărească. Informațiile specifice milezimei vinului au fost organizate într-o bancă de date de tip relațional, în care s-au colectat, inventariat şi organizat toate aceste informații. Banca de date este o colecție omogenă de baze de date, fiecare reprezentând o modalitate de stocare a informațiilor pe suport infomatic, cu posibilitatea regăsirii rapide a acestora. Au fost proiectate şase baze de date şi anume: parcela de control, climatul viticol, fenologia viticolă, maturarea strugurilor, recolta de struguri şi producția de vinuri cu denumire de origine controlată. Analiza informației asociată bazelor de date s-a facut prin metode specifice (de comparare şi raportare la milezima normală şi/sau pe baza unor indicatori) fiecarei grupe.*
Cuvinte cheie: milezimă, bază de date, bancă de date

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INTRODUCTION

The data bank of wines's "millesime" is a unitary collection of databases, each of them representing a way to stock up the informatios on an electronic support with the possibility to their rapid retrieval. The aim of this work was to define the quality of wines in relation with the vintage year, grape varieties and wine growing areas. The "millésime" of a wine is defined as the year of grapevine vintage from which the wine was obtained, associated with the informations regarding the quality of wine. The qualitative level of annual wine production is evaluated based on the folowing criteria: climate of vineyard, ripening of the grapes and quality of wines. The maximum quality level is achieved if the following percentages are performed: 30% for the climate of vineyard, 30% for the ripening of the grapes and 40% for the quality of wines (Tudorache, 2001). The informations associated to wines's millesime are annually produced by three techniques such as: data collection, observations and analysis using specific methods.

MATERIAL AND METHOD

In order to achieve the data bank associated to wine's "millesime" the following studies were performed:

1. Technical and scientific substantiation of wine's "millesime";
2. The structure and interface of the data bank associated to wine's "millesime

The analysis of informations associated to wine's "millesime" was performed by using specific methods: the comparison and the reporting to a millesime with a medium quality, the using of defined indicators and methodologies customized by The Research and Development Institute for Viticulture and Enology, Valea Calugareasca. The systems from which the informations have been collected are The national system for the management/Register and local system for monitoring the climate of vineyard.

RESULTS AND DISCUSSIONS

The data bank was projected for the Dealu Mare, Valea Calugareasca center viticulture area. The wines with controlled appellation of origin „Dealu Mare" are those wines which are obtained only in the Dealu Mare vineyard's perimeter (Axente et al., 2004; ***2003; *** 2007). The quality and characteristics of these wines are essentialy due to the geographical environment with specific natural and human factors (*** 1999).

The design of the analytical data bank associated to DOC wine's millesime was made in two steps. The first was the technical and scientific substantiation of wine's "millesime" and the second, the presentation of the structure and interface of the data bank associated to the controlled appellation of origin wine's "millesime" of Dealu Mare-Valea Calugareasca vineyard.

1. Technical and scientific substantiation of wine's "millesime"

The activities that characterized the "millésime" of wines, presented in Figure 1, are the following: the design of the analytical data bank, the production

of the informations generated from the data bank, the collection of the primary data and the loading of the data bank with specific informations.
The data bank associated to wine's "millesime" is formed by six databases containing informations about: the control plot, climate of vineyard, grapevine phenology, ripening of the grapes, grapes harverst and wine production (fig. 1).

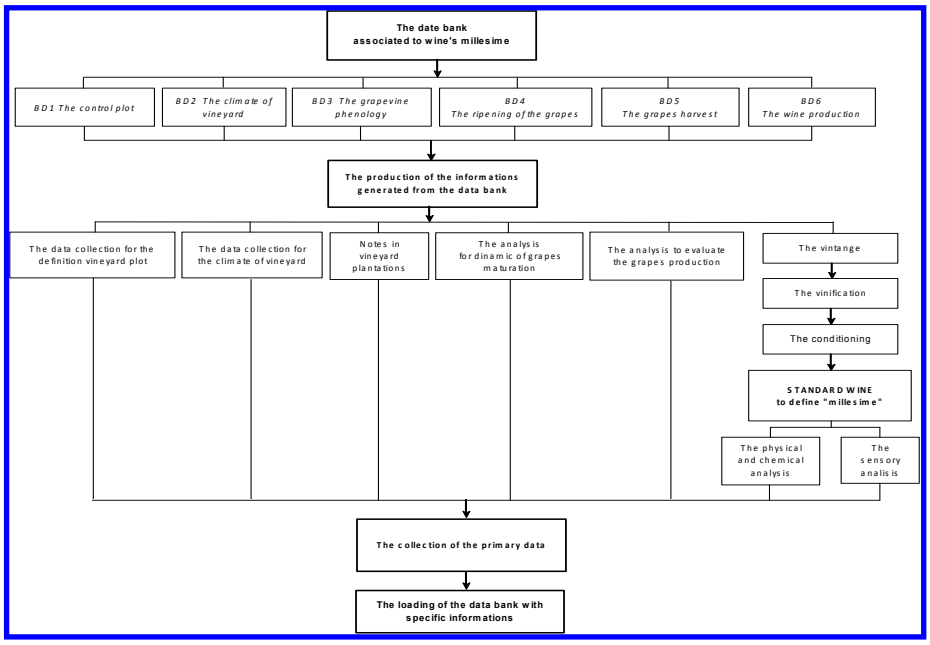

Fig. 1 – The presentation of data bank associated with wine's millesime

The informations associated to wines's millesime are annually produced by three techniques such as: data collection, observations and analysis. The systems from which the informations have been collected are The national system for the management/Register and local system for monitoring the climate of vineyard.

Observations, measurements, vinifications, physico-chemical and organoleptic analysis are performed in the experimental plots. The vinification is realized using a standard winemaking scheme which was elaborated from The Research and Development Institute for Viticulture and Enology, Valea Calugareasca in order to guarantee the origin and varietal tipicity of wines. This wine is named "STANDARD WINE" for millesime. The physico-chemical analysis of grapes and wines are based on standard or specific methods for vitivinicultural field.

The primary data for millesime are collected on the sheets and the specific informations are loaded in the data bank.

2. The structure and interface of the data bank associated to the wine's "millesime"

The data bank associated to DOC Dealu Mare, Valea Calugareasca wine's millesime is formed by six sheets representing the databases. The informations

presented in table 1 are related to: the vine plot (entity BD_PARCELEC), the climate of vineyard (entity BD_CLIMVIT), the potential of vineyard (entity BD_FENOLOGIE), the dynamics of grapes maturation (entity BD_DINMATST), the grape harvest potential (entity BD_RECOLSTR) and the production of wine (entity BD_PRODVIN).

Table1

The structure of the data bank associated to the wine's "millesime"

Database name	Entity	Attributes
The database for vine plot	BD_PARCELEC	the cadastral number, the administrative location (the county, the communal/the city, the village), vineyard location (the controlled sub/appellation of origin and vine plot), orographic characterization and the characterization of system culture.
The database for climate of vineyard	BD_CLIMVIT	the year, the month, the average temperature, the precipitation, days number with precipitation, sunshine duration, the air temperatures (average, minimum and absolute maximum) and the sum of global, active and available temperatures.
The database for the potential of vineyard	BD_FENOLOGIE	the variety, the phenophases name (bud breaking, flowering, veraison, full ripening grain, leaf fall) and the phenophase date.
The database for the dynamics of grapes maturation	BD_DINMATST	the date, the variety, vine plot, sugar, total acidity, weight of 100 grapes, anthocyanin content of the grapes, index of total polyphenols şi anthocyanin extractability .
The database for the grape harvest potential	BD_RECOLSTR	the variety, the vine plot, the production of grapes (at vine and at hectare) and the characteristics for must of grapes (sugar, acidity)
The database for the production of wine	BD_PRODVIN	The variety, productivity at vinification (to hL/q), acquired alcohol strength, total acidity, pH, sugar, unreducător extract, ash, IC/DO 420, total polyphenols, anthocyanins.

In order to facilely use the data bank, a friendly interface was designed. This is formed from recording and data handling sheets (fig. 2) through which are possible to directly operate on the produced information.

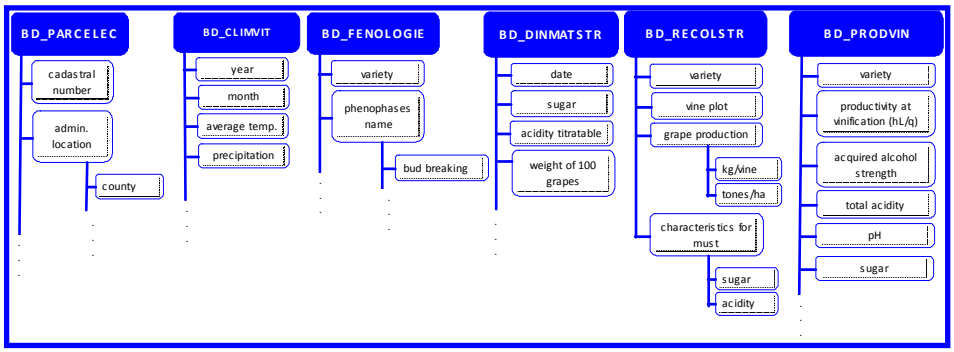

Fig. 2 - The interface of the data bank associated to the wine's "millesime"

The entity BD_PARCELEC presented in the figure 2 characterized the viticulture Dealu Mare, Valea Calugareasca area at the vine plot level. The elements used for the characterization of the vine plot are: administrative and viticulture locatings, orographic and system culture characterizations.

The climate of vineyard is annualy characterized during the conventional vegetative period through the entity BD_CLIMVIT (fig. 2). The climatic factors (temperature, relative umidity, sunstroke and rainfall) were defined in relation with the thermic and energetic regimes and the nature of the grapevine's water resources. Their evaluation was performed based on the viticulture bioclimatic indices, with the ability to differentiate and demarcate the viticulture areas in correlation with the designed objectives. The informations about the climate of vineyard are analyzed by the comparison and the reporting to a millesime with a medium quality.

The potential of vineyard represente the element through which the quality of the plot was annualy evaluated and characterized by the phenology (entity BD_FENOLOGIE). The grapevine's phenophases are: bud breaking, flowering, veraison, full ripening grain and leaf fall. The phenologic information was analized based on the phenology indicators which allow to evaluate the millesime's precocity, normality or tardiness.

A very important element for the quality of DOC wine obtained in Dealu Mare vineyard, Valea Calugareasca center is the maturation of grapes. The grapevine varieties reach the maturity stage according to their biological nature and the evolution of the climate conditions of the harvest year. The entity for the maturation of grapes databases is BD_DINMATSTR. The analysis of the stage concerning the maturation of grapes is realized by the comparison with an ordinary millesime.

The grape harvest potential has been given by the characteristics of grapes (quantity and quality) at harvesting.

The DOC wine production in Dealu Mare, Valea Calugareasca area is quantitatively and qualitatively characterized. The interface for BD_PRODVIN entity was presented in the figure 2. The quality of wines is evaluated based on the synthetic indicator of quality (Tudorache, 2001). The DOC grapes and wines production in Dealu Mare, Valea Calugareasca area was made by the comparison to a millesime with a medium quality.

CONCLUSIONS

1. The data bank of wines's "millesime" was projected based on a specific concept, using a friendly interface through which the centralization of informations is done. These informations were used to define the quality of wine in relation with the vintage year, grapevine varieties and wine growing areas.

2. The evaluation of the quality level of the annual production of wines was based on three criteria: climate of vineyard, ripening of the grapes and quality of wines.

3. The data bank was projected in order to asses the statistics studies regarding the favorability of the harvest years in Dealu Mare, Valea Calugareasca area and to underlie the vitiviniculture strategies at the regional and national level.

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