INFORMATION SYSTEM FOR MANAGEMENT OF GRAPEVINE GENOFOND IN REPUBLIC OF MOLDOVA

SISTEMUL INFORMATIC DE GESTIUNE A GENOFONDULUI VIŢEI DE VIE ÎN REPUBLICA MOLDOVA

CORNEA V.[1]
e-mail: v_cornea@yahoo.com

Abstract. *Elaborated Information System ensures necessary support in management of accumulated at Institute grapevine Genofond. For the description of accessions are used both general accepted descriptors: MCPD (Multi Crop Passport Data), O.I.V. Descriptor List and specific methodology applied for evaluation and documentation of genotypes. At the same time are ensured transfer to this format of data accumulated according previously used description methodologies.*
Key words: grapevine, genetic resources, information system

Rezumat. *Sistemul Informatic elaborat asigură suportul necesar în gestiunea Genofondului viţei de vie acumulat la institut. Pentru descrierea intrărilor sunt utilizate atât seturile de descriptori general acceptaţi: MCPD (Multi Crop Passport Data), O.I.V. Descriptor List, dar şi cele specifice metodologiilor aplicate în studiul şi documentarea genotipurilor. Totodată, este asigurat transferul, în acest format, a datelor acumulate conform metodologiilor utilizate anterior la descrierea soiurilor.*
Cuvinte cheie: viţă de vie, resurse genetice, sistem informatic

INTRODUCTION

During the process of formation, maintenance, evaluation and utilization of grapevine genetic resources in Republic of Moldova (Ivanova, 1976; Savin, 1980, 2005) was accumulated in diverse forms a vast volume of information: ampelographic descriptions, data of agrobiological characteristics of genotypes as well as data about their evolution in the frame of Ampelographic Collection and adjacent fields. Initially, ampelographic descriptions and other observations and evaluations were made according the methodologies used by Constantinescu (1958), Lazarevski (1963), Ivanova (1976) and beginning from the late nineties of last century it was initiated application of Descriptor List adopted by OIV (Descirptors for grapes, 1983). As a first stage in the process of accumulation, systematization and analysis of data processing was the elaboration and completion of Data Base (DB), the actions being in concordance with the international tendencies (Dettweler, 1994). Simultaneously, new technical and functional performances of computing allow their application in solution of specific problems concerning the grapevine Genofond, inclusively utilization of

[1] Research and Practical Institute for Horticulture and Food Technologies, Chişinău, Republic of Moldova

statistic-mathematical multi-variational methods in description and identification of grapevine varieties (Rotaru, 2002). During the last decade grapevine Genofond from Republic Moldova is involved more actively in integration process in European network of genetic resources (Savin, 2008). Thus is necessary the elaboration and utilization of adequate informational instruments for this purposes.

In order to ensure the necessary support in complex process of management of grapevine Genofond, processing according modern requirements of large spectrum of information, divers both by their nature – digital, textual, digital photos and frequency of accumulation and actualization, is developed Information System of Grapevine Genofond (ISGG).

MATERIAL AND METHOD

Data Base of ISGG includes information concerning multiple aspects of management of grapevine Genofond: stocktaking of accessions, passport data, ampelographic description, using as methodological support List of Descriptors elaborated by OIV (Descriptor List, 2009). For the genotypes included in special studies information is accumulated according the used Research sheets and is ensured their transfer to the format required by OIV Descriptors. As a tools for development of Information System is used Database Management System Visual FoxPro 9.0.

RESULTS AND DISCUSSIONS

As a central entity in projection of ISGG Data Base was used the genotype (its accession) entered in Genofond (fig. 1).

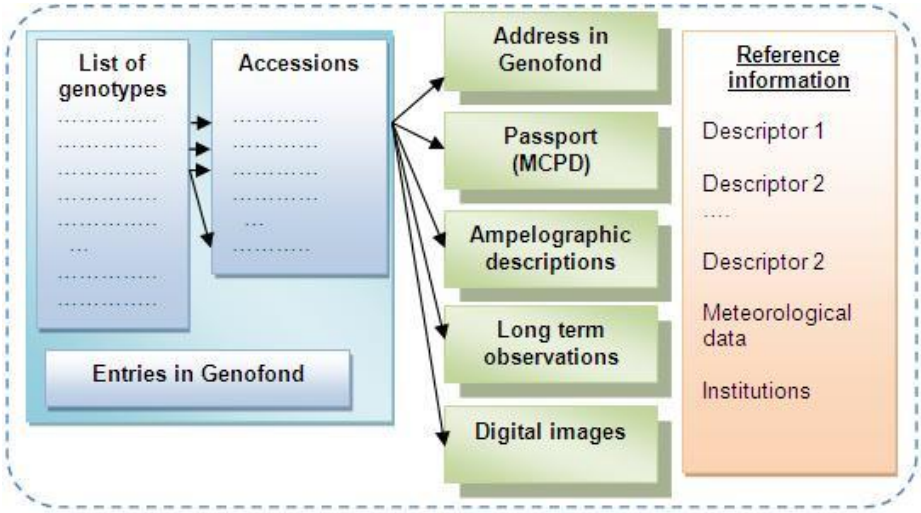

Fig. 1 - Conceptual scheme of ISGG Data Base

The Passport Data for every accession is filed according the list specified in MCPD (Multi Crop Passport Data) (Descriptor List, 2009). Following the general

accepted practice, in order to identify the accession in concrete Genofond, was used Institute's FAO code – MDA004, followed by 5 digits - sequential registration number. Against the number of sources of initial biological material for every genotype can be presented more than one accession in Genofond. ISGG ensure the evidence of "history" of every entry in Genofond – from the moment of registration of date of entry are tracked all regenerations in the frame of Genofond, evolution of biological state of every plant, dissemination of biological material to other research centers and diverse beneficiary. For every presented genotype (some time for every accession of the same genotype) are accumulated ampelographic descriptions according (OIV Descriptor List), data of long-term observations from diverse sources (phenological stages, indexis of fertility and productivity, other agrobiological parameters).

Collection of initial data (observations, measurements) is facilitated by using of predetermined forms. For every described compartment (young shot and leaf, mature leaf, bunch etc.) in the form is included only the set of descriptors relevant to given compartment and the period of vegetation when are made the observations. In special cases user can generates interactively a custom form.

In order to use and assimilate already accumulated information during the previous studies or of information actually presented in various sources and formats (literature, Internet etc.) according actually adopted description methodology (Descriptor List, 2009), ISGG ensure their compatibility with OIV descriptors (fig. 2). Thus, going from heterogeneous information (according the applied methodology during the collection), it ensured its presentation and dissemination in common format to the diverse destinations (Ampelographic Card, European Data Base of genetic grapevine resources etc.)

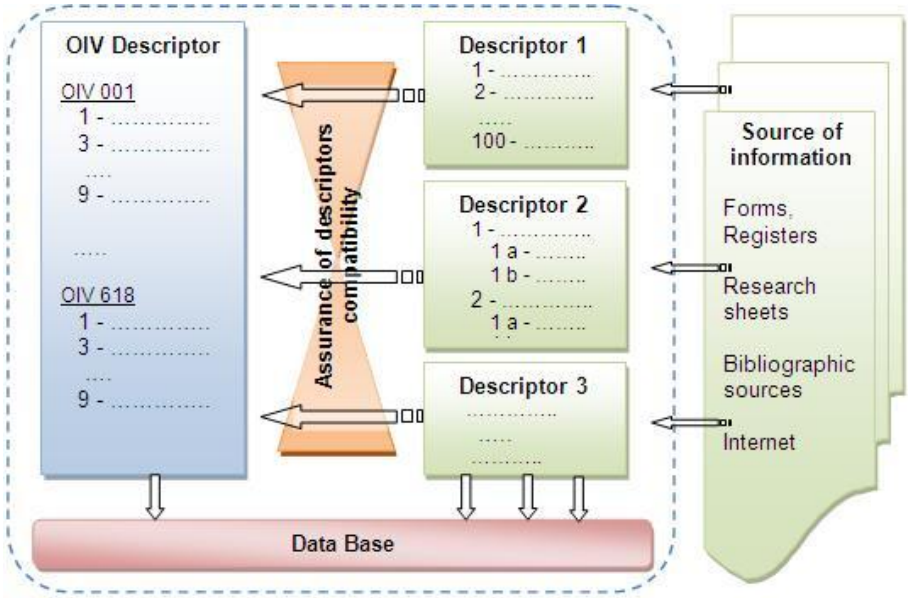

Fig. 2 - Conceptual scheme of unification of descriptors

In order to ensure more fidelity in fixation of diversity and particularities of described objects, that can't be covered and expressed only in basis of the List of Descriptors, Data Base of ISGG is completed with graphical information, inclusively digital photos. This way ensures the distribution, over the time of year, of some descriptions and evaluations, also more suitable comparison (confrontation) with reference genotypes.

The interface of ISGG is realized in form of main menu with submenu of different levels that allows their easy utilization by various categories of users already familiarized with other Information Systems.

CONCLUSIONS

1. Elaborated Information System ensures necessary support regarding some aspects of process of management, evaluation and utilization of grapevine genetic resources in Republic of Moldova: the evidence of "history" of every entry, ampelographic descriptions, data of long-term observations, digital photos etc.

2. Utilization of internationally accepted methodologies and applied mechanism of transfer to this format of previously accumulated data favour the promotion and integration of presented resources in international network of genetic resources.

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