



Genetic resources for table grape breeding in the Brazilian tropical semi-arid region

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Introduction

- ✓ In Brazil, the conservation of grapevine germplasm is under the responsibility of the Brazilian Agricultural Research Corporation - EMBRAPA, composed of two collections.
- ✓ The main collection is at EMBRAPA Grapes and Wine, in Bento Gonçalves, state of Rio Grande do Sul. This Germoplasm Bank stands out as the largest collection of germplasm in Latin America with 1418 accessions.
- ✓ A second collection is at EMBRAPA Semi arid and is the only one present in the Northeast of Brazil, in a semi-arid tropical climate and represents a strategic resource for the sustainability of the tropical viticulture.



The grape germplasm conserved in EMBRAPA Semiarid has been used since 1980's for multidisciplinary researches.

However, one of its main objectives is to provide information about the behavior of the genotypes and the variability required for grape breeding program. These projects intend to advance in the next years for the development of new seedless table grape cultivars adapted to the tropical conditions of the Brazilian semiarid.

Composition and management

- ✓ **Local:** EMBRAPA Experimental Station Field, city of Juazeiro, state of Bahia (9°24'S, 40°26'W, 365.5m altitude).
- ✓ **Climate:** very hot semiarid region.
- ✓ **Composition:** 268 genotypes, classified as follows: 54% of table grapes and raisins, 34% wine and juice grapes, 5% are of unknown origin, 5% are rootstocks and 2% are wild American species. The majority of genotypes or 63% are *Vitis vinifera* L., and 27% are interspecific hybrids
- ✓ **Vineyard management:** VSP trellis system, drip irrigation, pruning in canes and spurs in a bilateral cordon twice a year, removal of shoots and leaves and topping of branches.



Evaluation and characterization

According to IPGRI / UPOV / OIV (1997) descriptors: production, number of bunches, bunch characteristics: mass, width, length, shape and compactness, berry characteristics: mass, length, diameter, shape, color, flavor, pulp consistency, presence of seeds, total soluble solids content and titratable acidity.

Period of study: 2002 to 2016, corresponding to twenty-five growing seasons, with two harvests per year.

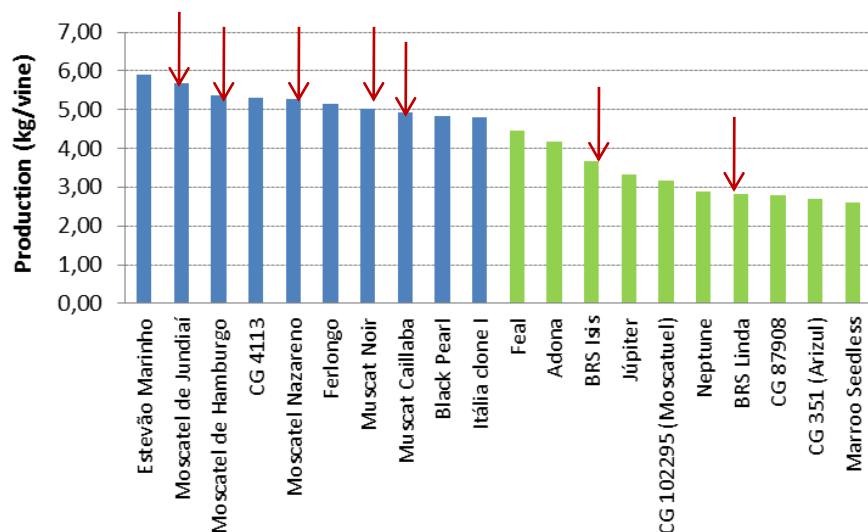


Results

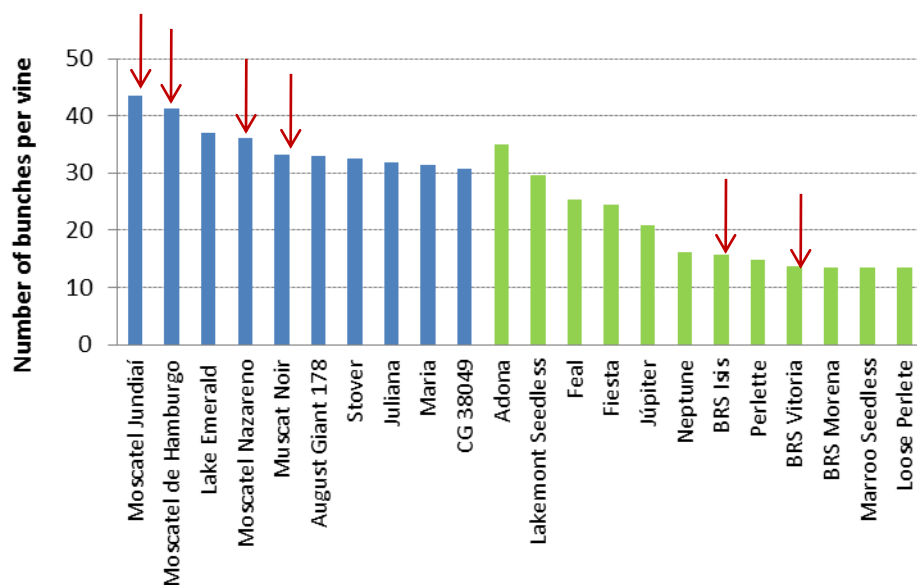
- ✓ There is a great variation between genotypes and production cycles. Growing season in the second half of the year shows a better agronomic performance, which can be explained by the higher bud load in the second semester pruning compared to the first semester. Most seedless grapes cultivars have low bud fertility on short prunings.
- ✓ In general, the cultivars of seeded grapes have average values for production and biometric measurements of bunches and berries larger than those of seedless grapes
- ✓ For qualitative characteristics, most of the genotypes presented yellowish green (35%), neutral taste (64%), soft consistency of pulp (48%), cylindrical cluster shape (37%) and round berry shape (44%).
- ✓ The higher mean values for each variable were used to rank the ten best genotypes for seedless and seed table grapes

Results

Yield Components

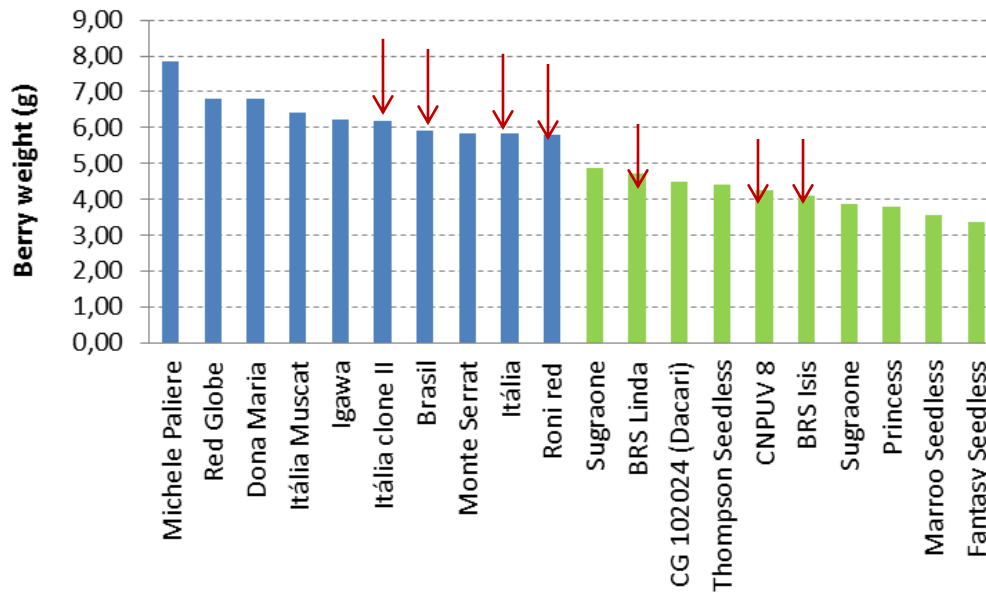
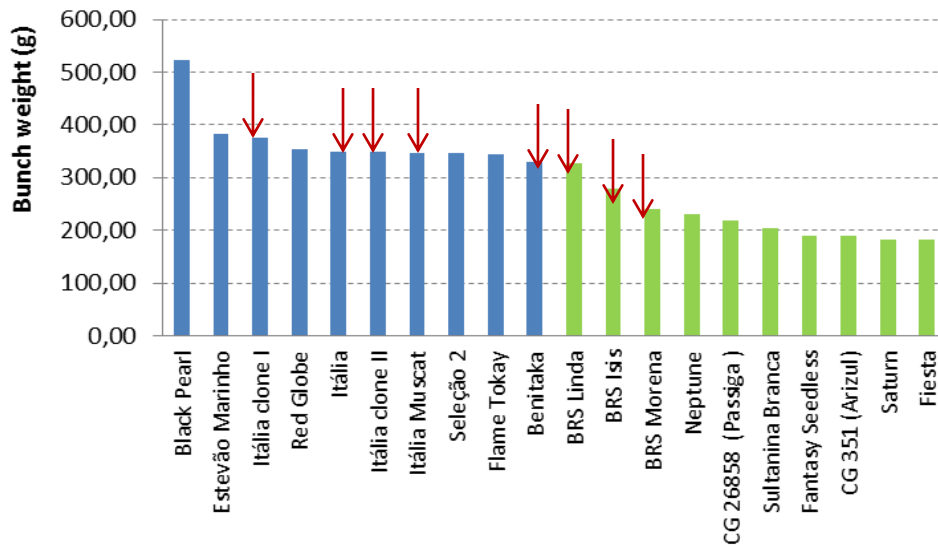


✓ Muscat cultivars such as Moscatel de Hamburgo, Moscatel de Jundiaí, Moscatel Nazareno, Muscat Noir and Muscat Caillaba were among the most productive among the group of seeded grapes .



✓ In seedless table grape group, cultivars A Dona, Feal, Jupiter, and EMBRAPA cultivars: BRS Isis, BRS Linda and BRS Vitória are among the ten most productive

Results



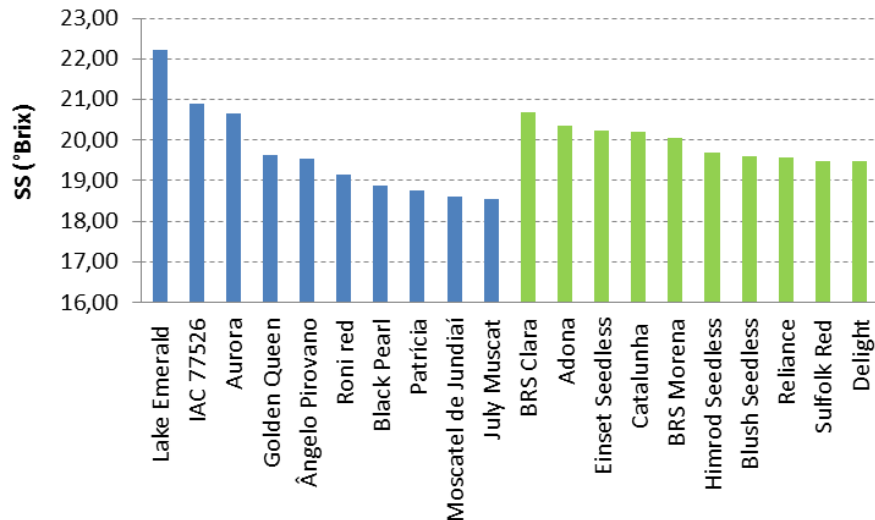
Bunch and Berry Weight

✓ ‘Italia’ clones and its natural color mutations ‘Benitaka’ and ‘Brasil’ have shown largest mass and size of the bunch and berry.

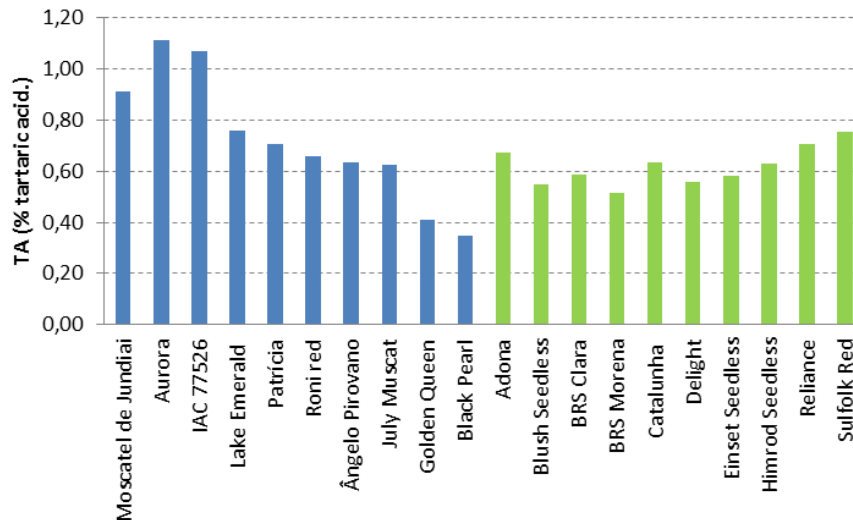
✓ ‘Italia’ is the most important seeded cultivars for table grape and sparkling wines in the São Francisco Valley

Results

Soluble solids and titratable acidity



✓ The soluble solids content had a mean value of 16.7° Brix, ranging from 12.8 to 22.2° Brix,



✓ Average for titratable acidity was 0.7%, with a maximum of 1.1% and a minimum of 0.3%



Genetic variability for table grape breeding



Conclusions

Grapevine Germplasm Bank at EMBRAPA Semi arid has been conserved, characterized and documented over the last 18 years. The results obtained by the morphoagronomic evaluation has been used for the selection of parentals in the table grape breeding program and it is a important public data base for the introduction of new grape cultivars by table and wine grape industry in the São Francisco Valley.





Thank You !

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