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Forest genetic biodiversity - What it is and why it is useful?

B Sachithanandam
Bharathiyar University, India

Genetic diversity ensures that forest trees can survive and evolve under changing environmental conditions. Even slight variations in gene expression can determine changes which enable forest trees and other organisms to adapt to environmental changes. Genetic diversity is also needed to maintain the vitality of forests and to cope with pests and diseases. Species that have very little genetic variation are at a greater risk. In addition, forest genetic diversity has a crucial role in maintaining forest biological diversity at species and ecosystem levels. The largest variation is between species, and loss of whole species is therefore also the most dramatic loss of future options. A resource refers to the use of genetic variation - in the broad sense stated above. Conservation of forest genetic resources consists of actions and policies that assure the continued existence, evolution and availability of these resources for present and future generations. The conservation of forest genetic resources is a dynamic effort and requires active management in order to maintain conditions under which the genetic makeup of a species can continue to evolve in response to changes in its environment. Recent advances in forest genetics and genomics will help understanding tree adaptation mechanisms and developing guidelines for continent-scale transfer and use of forest reproductive material in the face of climate change. Furthermore, the mapping of the genetic diversity of tree populations will support the traceability of traded wood products and forest reproductive material, thus contributing to the implementation of certification and monitoring schemes. Genetic and genomic information will also contribute to better assessment of genetic diversity and effective population size, supporting management of tree populations for both conservation and production purposes. Moreover, information on the distribution patterns of adaptive diversity is needed for locating areas suitable for the establishment of gene conservation units. Other applications of genetic and genomic research are in the area of wood production and tree breeding where a deepened understanding of the nature of genetic variation enables improvement of relevant traits. Finally, trees are attractive as a source of bio energy because they display a wide range of growth habits and can be grown on marginal lands unsuited to agricultural crops, including energy grasses. This reduces costs and facilitates optimized land management. With its forest action plan, the European Commission also promotes the use of forest biomass for energy generation. High biomass production needs to be combined with desirable cell wall properties before trees can be used for producing biofuels. High nutrient and water use efficiencies are also key traits for these reasons, it is essential to have a fundamental understanding of gene networks and regulatory mechanisms that control tree growth and their carbon and nitrogen allocation, as well as lignocellulosic quality and breakdown in trees.

sachithanandams@gmail.com

Effect of foliar spray of zinc, iron and boron on quality parameters of guava (*Psidium guajava* L.) cv. Sardar L-49

Mahesh Bhoyar[1,2], Ramdevputra M V[2], Kunjadiya B B[2] and Varu D K[2]
[1]Dr. Yashwant Singh Parmar University of Horticulture and Forestry, India
[2]Junagadh Agricultural University, India

The field experiment was carried out to study the response to the foliar application of micronutrients viz. zinc, iron and boron in different combinations on guava (*Psidium guajava* L.) cv. Sardar L-49 for quality parameters. The maximum fruit length (9.4 cm), fruit width (8.5 cm), fruit weight (219.7 g), fruit volume (274 ml), yield (57.1 kg), T.S.S. (^{0}Brix) (13.6^0), total sugars (7.9%) and minimum acidity (0.38%) were recorded with combined application of 0.5% zinc sulphate + 0.5% ferrous sulphate + 0.3% borax.

Biography

Mahesh Bhoyar is pursuing his Ph.D. from Dr. Y.S.P.U.H.F., Nauni-Solan and completed his Master studies from J.A.U., Junagadh, Gujarat. He has attended many national, international conferences and participated in poster/oral presentation.

mahesh.bhoyar@gmail.com