Germplasm Innovation and Ecological Restoration

山|地|未|來
MOUNTAINFUTURES

World Agroforestry Centre

Domesticating African orphan crops

Protection and utilization of African orphan crops and characteristic woody germplasm resources in the dry-hot valley

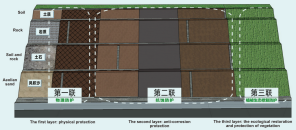
The African Orphan Crops Consortium is an innovative alliance jointly initiated by the World Agroforestry Center, BGI and African country governments. The alliance selects 100 African crops that crucial to rural areas, agriculture, farmers and food culture for genome sequencing, and helps Africa select crop varieties that are more sustainable, more productive and more tolerant to extreme habitats.

Calotropis spp

Calotropis gigantea **is mainly distributed in tropical and subtropical regions of Asia and Africa, but** *Calotropis procera* **is only distributed in the southern Sahara Desert.**

Five uses of *Calotropis app.*

Fodder | Medicine | Textile | Energy | Food



- The material of the first physical protection is composed of bolt and galvanized machine-woven metal mesh;
- The material of the second anti-corrosion protection is composed of proprietary bio viscoelastic;
- The third form of protection refers to the construction of an ecological system comprised of soil habitats, vegetative communities, and material circulation.

Soil microbial – mycorrhizal – plant system reconstruction and ecological restoration of slopes

Our goal is to screen high-quality germplasm abilities of phosphorus and nitrogen-fixing microorganisms and stress-resistant plants across different ecological environments, establish a microbial agent culture system and germplasm gene bank consisting of native tree species, build a mycorrhizal plant interaction system for soil microorganisms as well as three-dimensional composite of tree, shrub and grass bacteria, restore degraded mining sites, highway slopes and mountain landscapes, and finally, green and beautify roads, mines and urban villages.

Vitellaria paradoxa

There is only one species of avocado in olivaceae, which grows in tropical or subtropical Africa. It is highly adaptable to harsh environments, and the whole plant has economic value, particularly its kernel, which can be used to produce shea oil and substitute oleoresin, an extract widely used in cosmetics, food and medicine industries.

Improve the success rate of crop introduction

We study patterns of growth and change in avocado during its growth period, and observe, record and summarize these patterns to provide a basis for its scientific management via pollination, pest control, appropriate fertilization, etc. so as to improve the success rate of its introduction.

Increase production and providing guidelines for harvesting

It is significance for expanding cultivation, increasing yield and providing guidelines for harvesting to study the effects of biological characteristics and geographical factors on yield.

Analyze nutritional composition

In order to provide data support for its utilization and avoid the waste of resources, we analyze the nutritional composition of avocado and explores its superior quality in comparison to other similar fruits.