A Global Strategy
for the conservation and use of Coconut Genetic Resources
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LA RECHERCHE AGRONOMIQUE
POUR LE DÉVELOPPEMENT

COGENT
Coconut genetic resources
for enhanced livelihoods

Bioversity
International

acknowledge the stake of each COGENT member-country. Targeted end-users concerning this DSA include genebank managers, plant breeders, taxonomists, policy-makers, educators, and students, as well as the broader scientific community. Sharing data encourages researchers, provides vital input and support for academic research, and renders the data available to other investigators. A Frequently asked questions (FAQ) section about DSA can be found on the COGENT website[44], together with the Database Portal Terms and Conditions of Use and a draft proposal for DSA.

Movement of material into and out of COGENT genebanks should be monitored and carefully recorded, including transfer for safety duplication. This would provide up-to-date information on the global management of accessions. The monitoring system would link to local genebank management systems to the future quarantine centre(s) and cryogenebank(s), providing up-to-date information on the location and availability (e.g. quarantine status) of the germplasm.

As is already in place for other crops, a likely future development for an information portal is the provision of a germplasm ordering system that would allow the user to select the most appropriate germplasm accessions in the collections accessible in the public domain based on passport, characterization and evaluation data. The germplasm ordering system would take account of the guidelines for safe movement of coconut germplasm and link accessions to an MTA or SMTA. The ordering system would also serve the purpose of tracking movement of germplasm in a similar way that the global information system for the International Treaty does.

COGENT envisions entrusting the global management of accessions data to one of the institutions linked to COGENT country-membership.

3.8.3 Databases for and of farmers

Farmers' access to appropriate and diverse planting material is an essential condition for sustainable coconut production. COGENT envisions an information management system for farmers that will provide comprehensive and updated information on coconut planting material, and on where and how to find it. Not all farmers will be able to directly access this online database, so simple and accurate documentation could also be made available (easily downloadable and printable) from the COGENT website, in conjunction with the websites of member-countries.

COGENT country-members should create and make available on line national databases "coconut planting material" that will include sources of coconut seednuts produced by national institutions, private companies, farmers and other stakeholders. Each extension service should also have a farmers' database facilitating the diffusion of information and innovation to farmers.

The national "coconut planting material" databases could be made accessible under a section "seednuts for farmers" added to the main page of the COGENT website. It

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44 See http://www.cogentnetwork.org/index.php/faq/137-what-is

will include two search options: by country, and by type of variety. This section will include coconut seednuts produced by national institutions, private companies, NGOs, farmers and other stakeholders at the national or global level, respectively.

Such a database will gather information about the planting material and also about people and sites involved in its production, with respect to intellectual property rights of the countries, farmers and other stakeholders. A significant amount of information already exists, even on the COGENT website, but this information is presently not sufficiently accessible[45].

The private sector is also very interested in contributing to such a database. Contacts recently initiated with private companies in Brazil, for instance, have highlighted the following issues: an interconnected network indicating producers of superior genetic seednuts, and the varieties most suitable for each purpose and environment, would be of great value for farmers and companies involved in coconut production.

The number of visits and downloads of technical documents from this online "Databases for and of farmers" will serve as an indicator for measuring the COGENT's success in communicating with coconut stakeholders.

3.9 Preparing the area of coconut genomics

As previously discussed in section 2.5.8, the range of techniques for genome study is rapidly expanding and coconut genomics information is quickly accumulating. Genotyping and sequencing approaches will continue to change rapidly. It is anticipated that some of the technical specifications given below will need to be revised to take into account the evolution of the methods and the decreasing cost and increasing reliability of high throughput methods. In particular, we believe that, even if microsatellite studies retain their usefulness, they will be quite quickly replaced by more powerful methods.

The coconut genomics approach is not only restricted to the *Cocos nucifera* genome. It also applies to associate pathogens such as the phytoplasmas involved in the lethal yellowing diseases. Meta-genomics analysis of soil samples collected at collection-evaluation sites could also help explain part of the prevailing phenotypic variation. Landscape genomics could also be helpful for a better understanding of the coconut climate adaptation in relation with climate change (e.g. higher global temperatures and sea-level rises). Genome wide association studies, when applied to environmental factors, help to select and breed "adapted" genotypes. However, data management and analysis may become the weakest element of the chain to allow full exploitation of these technical advances. Both the conservation of coconut genetic resources and breeding efforts can significantly benefit from genomic approaches and become more effective and (cost-) efficient!

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[45] See for instance the illustrated descriptions of coconut hybrids available pages 115, 117,119 and 121 of the following document :http://www.cogentnetwork.org/images/publications/part4_CFCTechPaper42.pdf