Field Trip for Second Roundtable Meeting for a Sustainable Cocoa Economy (RSCE2)
Friday 27th March 2009, La Reunion Estate

The Cocoa Research Section, CES, Centeno

The Cocoa Research Section, MAI/MR has the mandate to develop varieties and technology for improving cocoa production. In this respect, the Research Division has achieved the following over the course of both CADA/ICC/91 projects:

b. International Clone Trial and Observation Plots: Over 50 introduced international clones are being evaluated for use in future breeding programmes

a. Local Clone Trial: 20 local TSH clones are being evaluated and 5 are ready for commercial release

c. Regional Variety Trial: 15 selectively bred cocoa crosses from Trinidad and Tobago, Costa Rica, Ecuador, Venezuela, Peru and Brazil are being evaluated for many important traits including resistance to Moniliasis disease

d. On-farm cocoa varietal trials are in progress at Gram Couva, Biche and Tamana to validate and disseminate 20 best farmers’ and 10 best breeders’ selections.

Other research projects at the Cocoa Research Section include agro-forestry, fertiliser, pruning and arboricide trials.

The International Cocoa Genebank, Trinidad (ICG, T)

The ICGT is managed by the Cocoa Research Unit (CRU), and is situated at the University Cocoa Research Station (UCRS), a 37 3ha site at Centeno. Work to establish the ICGT, using rooted cuttings from existing collections began in 1982, with support from the European Development Fund (EDF). Prior to establishing the ICGT, various collections had been established at different locations on the island using selected varieties from Trinidad and Tobago, from other national collections and from numerous missions to collect primary germplasm. They include the Imperial College Selections (ICS), which resulted from an exhaustive survey in Trinidad and Tobago carried out by the late Dr. F.J. Pound between 1930 and 1935. A main source of original material for the ICGT was Marper Farm at Mamonilla, East Trinidad, established by Dr. Pound following his expeditions to Ecuador and the Upper Amazon between 1937 and 1942. In addition, germplasm was available from other expeditions such as the Anglo-Colombian expedition in 1952-53 and Chalmers’ expeditions between 1968 and 1972.

The Germplasm of the ICGT

Currently, approximately 2,300 accessions are conserved in the ICGT, and additional clones are added as they become available. These accessions represent four genetic groups of cacao (Forastero, Trinitario, Criollo, and Trinitario), and 90 accession groups. There are also a number of wild Theobroma species. The genebank is one of the most diverse collections of cacao germplasm in the world, and has been designated as a Universal Collection by Bioversity International. It is one of two cacao repositories in the public domain.
The Breeding Programme of MALMR

MALMR pioneered the development of Trinidad Selected Hybrids (TSH) at La Reunion Estate by exploitation of local (Trinitario) and exotic (Forastero) germplasm using a recurrent selection strategy. From 1949 to 1980, the late W.E. Freeman used ICS 1, SCA 6, IMC 67 and POUND 18 as parents in controlled crosses and successfully produced cultivars with high resistance to Witches’ Broom disease and Ceratocystis Wilt, early bearing, low pod index and fine flavour characteristics. Today, the TSH varieties are being planted by farmers throughout Trinidad and Tobago to provide high yields (Pod Index = 12, and potentially over 2,000 kg/ha) and good resistance to Witches’ Broom disease. The breeding programme is continuing and current efforts are aimed at improving resistance to Black Pod disease, increasing yield potential and broadening the genetic base of the TSH varieties.

The Cocoa Processing Facilities

The cocoa processing facility located at the La Reunion Estate, Centeno is perhaps the best example locally of an effective ergonomic system for cocoa processing. The current facility was recently refurbished and comprises of a battery of double-walled fermentation boxes in a cascade arrangement of three boxes, one for each day of turning of the beans. The front wall of each box has removable slats to facilitate turning into the next box. The third and last box opens directly onto the bed of an artificial dryer. Drying usually takes 4 days to reach approximately 7.5% moisture content. Dried beans are then transferred into a circular paddle polisher and a final dryer via a continuous belt conveyer. The beans are then mechanically graded according to size and are then moved to an area where they are bagged, weighed and stacked in preparation for transport.

The CFC/ICCO/BI Trials

Trinidad and Tobago is one of ten cocoa producing countries that has participated in two international germplasm projects. The first project entitled Cocoa Germplasm Utilization and Conservation: A Global Approach (1999–2004) was followed by the current project entitled Cocoa Productivity and Quality Improvement: A Participatory Approach, (2004–2009). These projects have been financed by the Common Fund for Commodities (CFC), with the International Cocoa Organisation (ICCO) acting as the Supervisory Body and Bioversity International (BI) (previously IPGRI) being the Project Executing Agency. The Government of Trinidad and Tobago has provided major support as a co-financer. A major objective of these projects is geared towards providing new cocoa varieties with improved yielding capacity, disease resistance and quality traits for increasing overall cocoa production. The current project involves farmer participatory approaches for the development of more efficient and sustainable cocoa cropping systems through distribution, validation and use of these promising cocoa varieties.