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W119 : Cacao Genome Sequencing

Status Of Cacao Breeding In Cote d'Ivoire

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Cocoa breeding in Côte-d'Ivoire was initially based on the creation and selection of bi-parental crosses (hybrid varieties) with yield as the main criterion. Since the introduction of Upper Amazon (UA) materials in 1954, hundreds of "single pair" crosses between different groups have been made and the best crosses, mainly of the UA x Lower Amazon (LA) type (Amelonado), have been selected and distributed to farmers. This breeding strategy uses only part of the genetic diversity available and does not lead to the continuous genetic advancement required to improve resistance to pest and disease traits. From 1990 onward, a reciprocal recurrent selection (RRS) scheme was adopted in Côte d'Ivoire based on two complementary genetic groups: selected UA (providing good combining ability for early yield, adaptation, and for resistance to *Phytophthora* pod rot) and a mixture of Trinitario (T) and LA (providing good yield potential, self-compatibility, large beans and good flavour). Most of the second cycle parental clones were selected as single trees in the first cycle intra-group crosses, but also some additional parental clones were included. Based on data obtained from 12 microsatellite primers, the genetic diversity and genetic distances of the parental populations used in the first and second selection cycles were studied. More recently, some QTLs for resistance to *Phytophthora* have been identified for marker assisted selection on progenies from crosses that involved SCA6 and P7. Molecular markers are also being used for preventive breeding against frosty pod and witches' broom. In order to enlarge the local collection, the Centre National de Recherche Agronomique (CNRA) is engaged in a farmers' participatory approach for selecting new cocoa varieties and importing new germplasm from the international cocoa quarantine of Reading University

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