

Coconut conserved germplasm from

Benin

Genebank

Institut National de Recherche Agricole
du Benin (INRAB)
Seme Podji research station
Cotonou
Benin
Phone: (229) -240101
Fax: (229) -250266

Contact

Country member of COGENT
Mr. Bernadin Lokossou
Director
Phone: 229-240101
Fax: 229-250266
e-mail: lokaldo@yahoo.fr
e-mail: Inrabd4@bow.intnet.bj

Benin, officially the Republic of Benin, is a country of western Africa. It borders Togo to the west, Nigeria to the east and Burkina Faso and Niger to the north. The economy of Benin remains dependent on subsistence agriculture, cotton production, and regional trade.

As with other countries in the West African region, coconut is considered the second most economically important perennial oil crop in Benin. The most common variety planted is the West African Tall (WAT). The WAT was most probably introduced from Mozambique. Additionally, the variety was first planted in the country at Ouidah around the 17th century (Sanoussi, 1998). Aside from WAT, other varieties grown in Benin include the hybrid PB 121, which is a cross between the Malayan Yellow Dwarf and the West African Tall (MYD x WAT), and, less extensively, PB 111 which is a cross between the Cameroon Red Dwarf and the West African Tall (CRD x WAT). The total area planted with coconut in the country is estimated at 15 000 ha, about 90% of which is tended by smallholder farmers with average farm sizes ranging from 0.5 to 1.0 ha, although some large scale plantations or estates also exist varying in sizes from 5 to 50 ha each (Sanoussi 2005). Some of these smallholder farmers also rear cattle on their coconut farms, while others grow intercrops like cassava, maize, bean and groundnut as staple food, while their coconut palms are still young.

Located 20 km from Cotonou on the Porto-Novo Road, the Seme Podji research station was created in 1949 by the *Institut de Recherches sur les Huiles et Oléagineux* (IRHO) one of the research institutes now merged into CIRAD. Today, the station is part of a research facility belonging to the National Institute of Agricultural Research of Benin. The main research areas are: the creation of high yielding coconut varieties, the release of technological package for plantation management of hybrid coconut varieties, and the regeneration of soils under old coconut groves. Only four coconut varieties are conserved there, namely the West African Tall, Malayan Yellow, Brazilian Green and Cameroon Red Dwarf.

References

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West African Tall Ouidah (WAT06)

Konan JL, Koffi B, Bourdeix R

Conservation

Selected West African Tall Ouidah (WAT06) palms are only conserved in Benin and Côte d'Ivoire. Twenty-two WAT accessions totalling more than 3000 palms are registered in the CGRD. Since 1960, West African Tall seednuts – resulting from a mix of Akabo, Mensah and Ouidah origins – have been exported to at least eight germplasm banks worldwide, which include Brazil, India, Indonesia, Papua New Guinea, Philippines, Tanzania and Vanuatu.

History

According to Harries (1978), coconut was introduced from Mozambique to West Africa by Portuguese navigators at the beginning of the 16th century. From the Cape Verde Islands, it would have moved to the coasts of West Africa and Latin America. In Benin, the first introduction would have taken place in Ouidah city during the 17th century. From 1951 to 1954, three accessions of WAT were identified from two plantations located in Côte d'Ivoire (Mensah and Akabo) and from one located in Benin. The three accessions are kept separately in the collections and a mixture of these three accessions is used for the creation of hybrids under the name of West African Tall. Since 1951, around 1307 West African Tall palms were used in controlled crossings. Post analysis shows that 62% are originating from the Mensah Plantation, 23% were introduced from Benin and 15% come from the Akabo Plantation. This distribution is not really random; it results from successive selections carried out independently for about 30 years.

Identification

It is difficult to distinguish the three populations Akabo, Mensah and Ouidah of the WAT variety. Fruits of the WAT from Benin are a little heavier than those of the WAT found in Côte d'Ivoire (1170g compared to 1040g in the Côte d'Ivoire germplasm bank). They also have a higher husk weight ratio (43% compared to 38%). The weight of copra per fruit of the two populations is similar, ranging from 190g to 245g depending on environmental factors.

Yield and production

Fruit production generally begins 6-7 years after field planting. The number of bunches ranges from 11 to 14 per palm per year with a number of fruits ranging from 40 to 90 per palm per year. Data from Côte d'Ivoire allowed the comparison of 4000 ha of WAT with 12 500 ha of hybrids (mainly MYD x WAT or PB121). From 1985 to 1990, the hybrids have produced 2.4 t of copra per ha per year compared to the WAT which yielded only 1.5 t.

Other information

WAT is widely used as a parent material in coconut breeding programmes. Its hybrids with the Malayan Yellow Dwarf (known as PB121 or MAWA) and the Cameroon Red Dwarf (CAMWA) have been distributed worldwide. WAT is more sensitive to drought than the hybrid PB121. WAT is also sensitive to the lethal yellowing diseases in Jamaica, Tanzania and Ghana. It was also sensitive to the coconut foliar decay disease in Vanuatu. It is susceptible to the *Phytophthora* disease in Côte d'Ivoire and Indonesia.

References

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