

Côte d'Ivoire

Genebank

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The Republic of Côte d'Ivoire is a country in West Africa with an area of 322,462 km². Côte d'Ivoire borders Liberia and Guinea to the west, Mali and Burkina Faso to the north, Ghana to the east, and the Gulf of Guinea and the Atlantic Ocean to the south.

The Marc Delorme coconut research station was founded 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 Ivorian *Centre National de Recherche Agronomique* (CNRA). It took this name after Marc Delorme, the sixth Director was killed in an accident (Bourdeix et al. 2005). The Memorandum of Agreement for the establishment of the International Coconut Genebank for Africa and Indian Ocean (ICG-AIO) was signed in October 1999 by the Government of Côte d'Ivoire, IPGRI on behalf of COGENT and FAO as trustee. At the time of signing the MOA, the coconut genebank of the Marc Delorme Coconut Research Station was converted into the ICG-AIO. To date, ICG-AIO has a total of 99 accessions. It is located around 30 km from the centre of Abidjan, not far from the airport, on the edge of the lagoon. It is pleasant and easy to reach. Its guesthouse regularly houses students, trainees and researchers. It has four laboratories conducting research on the different aspects of coconut growing: agronomy, crop protection, breeding and technology. Its experimental plantations occupy an area of more than 1000 hectares.

By virtue of its germplasm collection, the Marc Delorme station has been able to satisfy the requests of numerous countries. Many partners, including India, Sri Lanka, Indonesia, Malaysia, China, Brazil and Costa Rica have received seednuts from coconut palms conserved in Côte d'Ivoire. One of the most recent operations consisted in planting performance trials involving a large number of varieties in Brazil, Benin, Ghana, Jamaica, Mexico, Mozambique and Tanzania. These experiments are designed to identify sources of resistance to a serious disease, Lethal Yellowing, which is killing many coconut palms in some of those countries.

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West African Tall (WAT) in Côte d'Ivoire

N'Cho YP, Konan JL, Kullaya A, Batugal P, Bourdeix R.

Conservation Sites

Selected West African Tall (WAT) palms are conserved at the Marc Delorme Coconut Research Centre in Côte d'Ivoire. Since 1960, WAT seednuts – resulting from the mix of Akabo, Mensah and Ouidah origins – have been exported to at least 10 germplasm banks worldwide, including genebanks in Brazil, India, Indonesia, Papua New Guinea, the Philippines, Tanzania and Vanuatu. Twenty-two WAT accessions totalling more than 3000 palms are now registered in the Coconut Genetic Resources Database.

History

WAT has gone a long way to becoming a part of the West African landscape since it was introduced by Portuguese travellers from Mozambique at the beginning of the 16th century. At the end of the 19th century, it was introduced to Côte d'Ivoire from Benin. From 1951 to 1954, three main accessions of WAT were surveyed from two plantations in Côte d'Ivoire and one in Benin.

Identification

The stem of WAT is rather thin for a Tall cultivar and it has a thin but sometimes curved bole. It is difficult to make a visual distinction between the three populations Akabo, Mensah and Ouidah of the WAT variety. Their fruit shapes are all long, angulated and medium-pointed to oblong. The husk ratio is high at around 40%. The fruit epidermis often bears folds or puckers, creating a kind of typical equatorial belt around the fruit. The nut inside is oblong, with a solid shell and thick kernel.

Yield and production

Fruit production generally begins six to seven years after planting. The number of bunches on average ranges from 11 to 14 per palm per year with 40 to 90 fruits per palm per year depending on the environmental factors and cultural practices. Fruits of the WAT in Benin are heavier than those found in Côte d'Ivoire (1169g and 1040g respectively). They also have a higher husk weight ratio (43% and 38% respectively). The weight of copra per fruit, which ranges from 190g to 245g, is similar in the two countries. The meat is thick and has high dry matter content (55 to 59%).

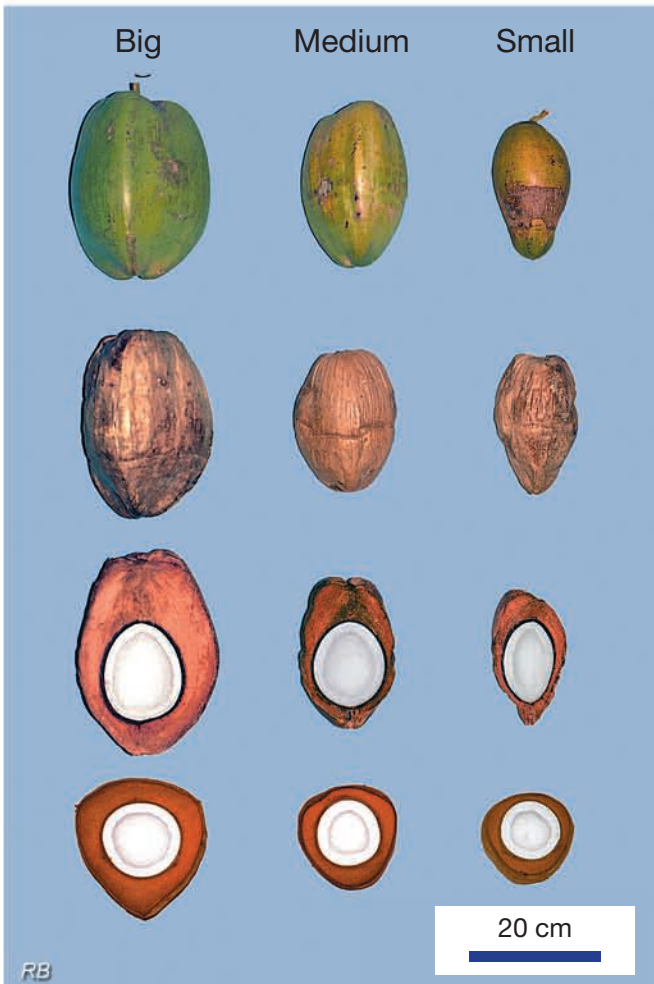
Other information

WAT is widely used as parent material in coconut breeding programmes. The hybrid between WAT and the Malayan Yellow Dwarf, known as PB121 or MAWA, has been disseminated worldwide. In Côte d'Ivoire, the new Tall cultivars have been systematically crossed with WAT and the Rennell Island Tall. Hybrids from WAT have been disseminated in Thailand. In the Philippines, WAT was included as a parental material for their coconut synthetic variety project. WAT is more sensitive to drought than the hybrid PB121. WAT is also sensitive to the lethal yellowing diseases in Jamaica, Tanzania and Ghana. The WAT fruits are preferred by the coconut exporters for export to the European market. The slow germination of the fruits and the thick and solid shell reduce the losses caused by packaging and shipment.

References

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West African Tall (WAT) *photographed in Côte d'Ivoire*



West African Tall (WAT) in India

Ratnambal MJ, Niral V, Krishnan M

Conservation

West African Tall (WAT) is conserved at the Central Plantation Crops Research Institute (CPCRI) in Kasaragod (Kerala), India. West African Tall is widely available and is conserved at 13 genebanks. It is represented by about 20 accessions in the Coconut Genetic Resources Database.

History

WAT was introduced from the Côte d'Ivoire to the germplasm collection at CPCRI in 1977. It is a slow grower, precocious in flowering and produces copra of good quality. The palm produces a fairly large number of oblong fruits with thick husk and thick endosperm. This variety is considered to be similar to Jamaica Tall.

Identification

WAT has a medium-sized bole and the stem is medium in girth (79.4 cm). The length of 10 internodes is 47.9 cm. The palm produces about 13-14 leaves annually. The leaves are long with strong petioles. The leaflets are also long and very broad. The palm starts flowering at about 6-8 years old. The inflorescences are medium-sized and contain about 30-38 spikelets. The spikelets are also medium in length, with an average length of 34 cm. The average number of female flowers in a spikelet is around 0.9 and the total number of female flowers in an inflorescence is around 30 of which 30% gives fruits. Pollination is generally through cross-pollination. The fruits are large, greenish-yellow in colour and oblong in shape. The nut inside is medium-sized with a thick shell and a thick layer of solid endosperm.

Yield and production

In India, WAT starts fruiting 89-115 months after planting. This variety is a regular bearer and produces 9-11 bunches annually. The annual average nut yield is 67 fruits per palm. The fruits are heavy, weighing around 1239g, including the 40% of husk. The nut without the husk weighs around 736g and produces 219g copra. The average oil composition in the copra is 68%. The estimated annual copra and oil yield of WAT variety, under rain-fed conditions, is 2.6 t per ha and 1.7 t per ha, respectively.

Other information

WAT is very drought susceptible. But the hybrid MYD x WAT is comparatively drought tolerant. WAT and its hybrids are highly susceptible to lethal yellowing in Ghana, and susceptible to bud rot caused by *Phytophthora heveae* and lethal yellowing in Tanzania, to 'Lixas' and leaf blight in Brazil, to 'heart-rot' and to fruit damage by *Eriophyes guerreronis*. It is resistant to *Helminthosporium halodes*. The quality of the tender nut water is good and has been recommended for consumption as tender nut. The MAWA hybrid, MYD x WAT, is also being evaluated in hybrid trials at CPCRI.

References

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West African Tall (WAT) *photographed in Côte d'Ivoire*

