

Mangrove swamp rice production in West Africa

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*mots-clés : RIZICULTURE MANGROVE PRODUCTION
AFRIQUE DE L'OUEST*

*keywords : RICECULTURE MANGROVE
PRODUCTION WEST-AFRICA*

Mangrove swamp rice cultivation, located in coastal areas where the population is relatively dense, is one of the oldest forms of rice culture in West Africa. Of approximately 1.2 million hectares of mangrove swamp

Country	Area under mangrove swamp rice (ha)	Rice area (%)	Rice Production (%)
Guinea Bissau	90 000	80	80
The Gambia	10 000	52	54
Guinea	64 000	12	18
Senegal	10 000	20	16
Sierra Leone	35 000	6	12
Nigeria	5 000	—	—

Source : WARDA, 1983.

Tab. 1 : Distribution of mangrove swamp rice area and production in West Africa.

The relative importance of mangrove swamp rice cultivation varies from country as indicated in Table 1.

CONSTRAINTS TO RICE PRODUCTION IN MANGROVE SWAMP

Research findings have indicated that the farmer can double his output but yield remains low which could be due to constraints below :

PHYSICAL/ENVIRONMENTAL

Variation in salt-free period and in depth and duration of tidal inundation of these swamps also impose serious limitations of the type of rice that can be grown successfully in different mangrove swamps.

Salinity and acid sulphate conditions are the major problems encountered on adverse soils in mangrove swamp environments.

Intensities vary depending on climate, hydrology, relief and method of land management.

The advent of lower rainfall especially in the Sahelian/Savanna zone during the last two decades has aggravated the constraints to rice production soils among which are the following :

- Toxicity from Al and Fe
- Deficiencies of phosphorus and N
- Salt injury
- Brown spot infestation
- Acidity

BIOLOGICAL CONSTRAINTS

Varieties : Low yielding varieties most of them are susceptible to pest and environmental stresses of mangrove swamp.

Pest : weeds diseases, insects and crabs.

SOCIO-ECONOMIC CONSTRAINTS

Farmers are constrained by limited labour, transportation, extension and education, and by lack of credit and input.

TECHNOLOGY DEVELOPMENT AND DISSEMINATION

Research for development of mangrove swamp rice in West Africa started in the 1920's. The early experimental activities in the Casamance region of southern Senegal, Guinea and Sierra Leone were isolated and unco-ordinated. From its inception in 1934 the Rice Research Station (RRS), Rokupr in Sierra Leone had

focussed on varietal improvement aimed at developing superior varieties for cultivation in mangrove swamps. In the late 1960, a series of high yielding early maturing varieties were selected which included BD 2, ROK 4 and ROK 5.

West Africa Rice Development Association (WARDA) established a special project at Rokupr in 1976 to develop technologies for increasing mangrove swamp rice production throughout the region. The approach taken was multi-disciplinary based five broad responsibilities, namely, varietal improvement, soil and crop management, pest management, Technology Assessment and Transfer and Training. Promising techniques were evaluated through on-farm trials in a Technology Assessment and Transfer Programme in Guinea Bissau, The Gambia, Guinea, Senegal, Sierra Leone and Nigeria. Active farmer participation in the technology development was emphasised. As a result a number of appropriate technologies were identified by mid- 1980's.

Thus, in 1990 WARDA initiated a new Network Project for two years, hings, to maximize the transfer of improved technologies, especially to National Agricultural Research Systems working in the mangrove rice environments.

and adaptive research combined with efficient extension activities can sustain yields far beyond 2.0 t/ha during the next decade. Due to declining rainfall there is need for shorter cycle varieties with greater salinity and sulphate acidity tolerance. In addition, future research should also focus on trials such as grain quality, ease of threshing, ease of cooking, amylose content and taste which affect varietal adoption by farmers.