



Africa Rice Center (WARDA)

WARDA News Release

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NERICAs Grow in Number: New Varieties Named

Based on their excellent performance and high popularity among farmers, 11 more New Rice for Africa (NERICA) varieties were named by the Africa Rice Center (WARDA) Variety Nomination Committee in March 2005.

This brings the total number of upland NERICA varieties characterized and named by the Center to 18, including the original seven NERICA varieties (NERICA 1 – 7) that were named in 2000. All these 18 NERICA varieties are suitable for the upland rice ecology of sub-Saharan Africa (SSA).

NERICA is the product of the successful crossing by researchers from the Africa Rice Center of the two species of cultivated rice: *Oryza sativa* (Asian species) and *Oryza glaberrima* (African species). The NERICA name was trademarked in 2004.

The Center has generated several hundred NERICA lines, opening new gene pools and increasing the biodiversity of rice to the world of science. Some of NERICAs, including these 18 varieties, combine the best traits of both parents: high yields from the Asian parent and the ability to thrive in harsh environments from the African parent.

NERICAs have been planted on more than 100,000 ha across Africa, including 70,000 ha in Guinea and more than 10,000 ha in Uganda, and are helping countries reduce crippling rice import bills.

The newly named NERICA varieties have been tested by the Africa Rice Center and the national programs in Burkina Faso, Mali, Congo-Brazzaville and Kenya. Three of these varieties have been released in Burkina Faso and the rest are expected to be released soon by national programs of several African countries.

"These NERICA varieties are very promising, with yields of 3-5 t per ha in farmers' fields. One of them yielded nearly 7 t at the research station in Congo-Brazzaville, which is planning to release it," said Dr Inoussa Akintayo, Coordinator of the [African Rice Initiative](#) (ARI) and a member of the Africa Rice Center Variety Nomination Committee.

The NERICA varieties mature 30 to 50 days earlier than traditional varieties. This trait is particularly valuable for farmers to bridge the gap of the 'hungry season', when food stocks from the previous harvest have been exhausted and the current season's crop is not yet mature.

"One of the outstanding characteristics of some of the new NERICA varieties is that they are 'extra early', with a maturity period of up to 90 days," explained Dr Akintayo. "Their grain quality is also well appreciated by farmers."

From the breeders' point of view, a notable feature of the new NERICA varieties is that unlike the first set of seven NERICAs, which were derived from a single cross, the new ones are the products of three crosses, using the same *O. glaberrima* parent but different

O. sativa parents.

The new NERICAs with their pedigree names are:

NERICA 8	WAB 450-1-BL1-136-HB
NERICA 9	WAB 450-B-136-HB
NERICA 10	WAB 450-11-1-1-P41-HB
NERICA 11	WAB 450-16-2-BL2-DV1
NERICA 12	WAB 880-1-38-20-17-P1-HB
NERICA13	WAB 880-1-38-20-28-P1-HB
NERICA 14	WAB 880-1-32-1-2-P1-HB
NERICA 15	WAB 881-10-37-18-3-P1-HB
NERICA 16	WAB 881-10-37-18-9-P1-HB
NERICA 17	WAB 881-10-37-18-13-P1-HB
NERICA 18	WAB 881-10-37-18-12-P3-HB

“The next task of our Center’s Variety Nomination Committee is to name the NERICA varieties that have been developed—by our breeders in partnership with the national program—for the high-impact lowland ecology of SSA,” announced Dr Akintayo. “Some of these varieties are already beginning to be released in West African countries.”

About the Africa Rice Center (WARDA)

Africa Rice Center (WARDA) is an autonomous intergovernmental research association of African member states. WARDA is also one of the 15 international agricultural research Centers supported by the [Consultative Group on International Agricultural Research](#) (CGIAR).

WARDA’s mission is to contribute to poverty alleviation and food security in Africa, through research, development and partnership activities aimed at increasing the productivity and profitability of the rice sector in ways that ensure the sustainability of the farming environment.

WARDA hosts the [African Rice Initiative](#) (ARI), the [Regional Rice Research and Development Network for West and Central Africa](#) (ROCARIZ), and the [Inland Valley Consortium](#) (IVC). It also supports the Coordination Unit of the Eastern and Central African Rice Research Network (ECARRN), based in Tanzania.

Since January 2005, WARDA has been working out of the [International Institute of Tropical Agriculture](#) (IITA)-Benin station in Cotonou, having relocated from its headquarters in Bouaké, Côte d’Ivoire, because of the Ivoirian crisis. WARDA has regional research stations near St Louis, Senegal and at IITA in Ibadan, Nigeria.

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reening the Sahel: improved technologies for irrigated rice farming

A package of high-yielding rice varieties, integrated crop management options and post-harvest equipment is bringing new hope to the irrigated rice farmers in the Sahel. The improved technologies, developed by the Africa Rice Center



(WARDA) and its national partners, have doubled average rice yield in Mauritania and have contributed more than \$30 million to Senegal between 1995/96 and 2000/01.

Improved rice varieties

Access to appropriate varieties was a major constraint to improving the production of irrigated rice in the Senegal River Valley. To address this problem, WARDA launched an initiative with national partners in Senegal to make available productive and adapted varieties.

Following extensive evaluation with farmers, three new varieties (Sahel 108, Sahel 201 and Sahel 202 with mean yields of 6 to 7 t per ha on farmers' fields) were released in the mid-90s in the Senegal River Valley, where the total area under rice cultivation is between 30 000 to 35 000 ha.

These varieties have become so popular with farmers that the the proportion of the total area under the Sahel varieties increased from 3% in 1995/96 to more than 70% in 2000/2001. The total volume of paddy from the Sahel varieties increased from about 3000 t to more than 115,000 t during the same period and accumulated revenue gains from the Sahel varieties exceeded \$30 million. Recently, five new Sahel varieties were released in the Senegal River Valley.

Postharvest technologies

In the irrigated rice systems of West Africa, threshing and cleaning are manually carried out mostly by women, who spend hours on these backbreaking operations. This not only affects their health, but also the grain quality and profitability of rice.



The Africa Rice Center in association with a wide range of partners developed the ASI thresher-cleaner to address these problems. Based on a prototype from the International Rice



International Rice Research Institute (IRRI), ASI has gone through several adaptations to match

the Senegal River Valley conditions.

ASI has a threshing capacity of 6 tonnes of paddy rice per day (compared to 2 tonnes for Votex—the other widely used thresher) and grain-straw separation rate of 99%. It is not surprising, therefore, that over 250 ASIs have been constructed in Senegal since its official release and over 50% of the total paddy harvested in the Senegal River Valley is now threshed with ASI, making it the most widely used thresher in the area.

Its contribution was recognized in 2003 when the President of Senegal presented the ASI team with the 'Grand Prix du Président de la République pour les Sciences' — Senegal's highest award for Science. The ASI team includes the Institut sénégalais de recherches agricoles (ISRA), the Société d'aménagement et d'exploitation des terres du delta du fleuve Sénégal (SAED), WARDA-Senegal, local manufacturers and farmers.

ASI's popularity has grown so rapidly that it has now spread to other countries in the region, and WARDA has been collaborating with partners in Mali, Mauritania, Ghana, Côte d'Ivoire and Burkina Faso to develop appropriate prototypes. The Africa Rice Center, ISRA and SAED are now using this ASI partnership model in an alliance for a further development of rice harvesting technology.

Integrated Crop Management (ICM)

The Sahelian environment is very complex and the constraints and priorities within the same region vary considerably as do farmers' perceptions and knowledge base. Realizing that irrigated-rice farmers need a wide range of improved technologies from which to choose, combine and adapt to suit their specific conditions, the Africa Rice Center and its partners have introduced the ICM approach that offers farmers ample flexibility and autonomy.

As part of this approach, a wide range of improved technologies that are still in the prototype phase are made available to farmers and are then adapted to the locally prevailing conditions through a progressive integration process.

The ICM basket includes options for improved fertilizer, weed, and water management, improved varieties and efficient post-harvest technologies as well as decision-making tools, such as optimum sowing date, seeding and fertilizer rates and timing of fertilizer application, based on crop modeling research. The ICM technologies are fine-tuned in farmers' fields, with a high degree of farmer involvement in the adaptation process.

To ensure the success of ICM in the long term, WARDA is placing greater emphasis on the sustainable management of the natural resource base, including maintenance of soil fertility, avoidance of salinity build-up, and biodiversity conservation.

WARDA scientists have found that farmers could significantly increase productivity and profitability by use of ICM. A major attraction is that the ICM components emphasize better

management of available resources without significant increases in input levels. Farmers in two study sites realized 60% and 85% increases in yields and profits, respectively. On-going and future research will emphasize the adaptation of the technology options to the broad range of irrigated rice production environments in sub-Saharan Africa.

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