

## 10. Impact Assessment

Impact assessment has been an integral part of WARDA's economics research program (Matlon and Guei, 1996; Lançon and Kassam, 2000) at a time when it became an onus on organizations to show what impact they have achieved with the funds provided by the donor community. Information on the relative importance of components of rice production systems and their associated constraints is required in order to prioritize research efforts, allocate scarce resources efficiently, and identify recommendation domains.

Since the early 1990s, WARDA and collaborators in the ROCARIZ Economics Task Force have conducted a number of adoption studies to identify constraints in factor allocation that may limit the adoption of new varieties. Labor availability, farm size, contact with extension services, market-oriented production, credit availability and gender are the most common farm and farmer-specific attributes that influence adoption or non-adoption (Zinnah and Adesina, 1993). Varietal attributes like ease of threshing, cooking and swelling quality are also significant determinants of adoption (Adesina and Seidi, 1995).

The adoption survey results have been used to estimate the return to rice research in the irrigated ecology of the Senegal River valley in Senegal (Master et al., 2000) and in the mangrove ecologies of Sierra Leone and Guinea Bissau (Adesina and Zinnah, 1993). These studies were followed by a study of the impact of improved rice varieties from both national and international research centers in all West African rice systems. The latter study estimated that genetic enhancement and transfer has increased the value of rice production by

US\$ 93 per hectare (Dalton and Guei, 2003). It also confirmed that while irrigated and rainfed lowland ecologies have largely benefited from varietal improvements, upland rice farming systems lag behind due to much lower rate of adoption and limited gains in yield. Results from more recent surveys conducted by WARDA confirm the very low uptake of modern varieties in upland ecologies due to low diffusion.

Following a strong recommendation from WARDA's EPMP in 2000 and recognizing that impact assessment has become a strategic issue for WARDA at a time when promising technologies like the NERICA lines are being released, WARDA created the position of Impact Assessment Economist to pursue impact studies that go beyond the adoption of varieties and returns-to-rice-research studies. Impact-assessment research at WARDA is now designed to cover a broader set of rice technologies and research products and to assess both *ex ante* and *ex post* impact on various household welfare and environmental outcomes. In order to achieve this objective, WARDA has (since July 2000) been implementing a series of baseline surveys in Côte d'Ivoire and Guinea.

### ***Impact assessment research strategy and themes***

The ultimate goal of impact-assessment research is to have in place a system that enables regular updating of information on diffusion and adoption of technologies and their impacts on selected behavioral, welfare and environmental outcomes at the household, community, national and regional levels, with the possibility for differentiating the impacts on different socio-economic groups.

Research and outreach will be pursued within four major themes: varietal improvement, integrated crop management, grain quality and post-harvest technologies, and regional capacity building.

1. *Impact of modern varieties on farmer livelihoods and rice biodiversity*

This research analyzes the socio-economic and biophysical determinants of farmers' choice of rice varieties, the management of seed systems and biodiversity at the household and community levels, and assesses the impact of modern rice varieties from WARDA and the NARS on biodiversity, farmers' livelihoods and poverty.

2. *Impact of improved crop management practices on farmers' livelihoods*

In addition to improved varieties, WARDA has developed a set of recommended ICM practices to increase yield and combat biotic and abiotic stresses (timing of input use and transplanting, soil-fertility and integrated pest management). The aim of this research is to assess the impact of ICM on farmers' livelihoods.

3. *Impact of improved local rice quality and post-harvest technologies*

Improving the quality of locally produced paddy and white rice is a prerequisite for higher competitiveness of the local production compared to imported rice. The objective of this research is to assess *ex-ante* and *ex-post* the impact of improving the competitiveness of locally produced rice through improvement in grain quality and promotion of better harvest and post-harvest technologies and improved farmers' paddy-handling practices.

4. *Building regional capacity in impact assessment*  
WARDA is also collaborating with NARS to establish a system for monitoring the impacts of rice technologies in each member country. WARDA provides training in the methodology of impact assessment and, when necessary, technical assistance for conducting impact-assessment studies.

### References

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