

## Reference 10 Selecting a variety

### Summary

Selecting the right variety depends on what constraints a farmer is facing (e.g. disease or iron-toxicity problems, poor water control) and on specific production objectives, such as home consumption or production for the market. The new WARDA rice varieties (New Rices for Africa, NERICAs), derived from crosses between African rice (*Oryza glaberrima*) and Asian rice (*O. sativa* subsp. *indica*), are expected to play a key role in rice cropping in inland-valley lowlands. Participatory Varietal Selection (PVS) is an effective tool to allow farmers to select varieties that suit their needs.

Selecting a rice variety depends on what specific constraints a farmer is facing, such as disease or iron-toxicity problems, or poor water control, but also on his or her production objectives, i.e. growing rice for home consumption or for sale in the local market. It is strongly recommended that national research systems be consulted to gain knowledge of what varieties have been released for inland-valley lowland conditions and their specific characteristics. The example of Côte d'Ivoire is presented in Table 10.1.

The new WARDA varieties (New Rices for Africa, NERICAs) derived from crosses between African rice (*Oryza glaberrima*) and Asian rice (*O. sativa* subsp. *indica*) have an important role to play in promoting rice cropping in both inland valleys (with and without good water control) and irrigation schemes. These varieties show good competitiveness against weeds, which is very important in such

**Table 10.1. Some of the lowland varieties officially released in Côte d'Ivoire**

Variety	Ecology	Height (cm)	Growth duration (days)	Characteristics
Bouaké 189	Inland-valley lowland	115	135	High yield
WITA 1	Inland-valley lowland	115	130	Tolerance to iron toxicity; resistant to blast; high yield
WITA 3	Inland-valley lowland	105	125	Tolerance to iron toxicity; resistant to blast; high yield
WITA 7	Inland-valley lowland	115	130	Tolerance to rice yellow mottle virus (RYMV); high yield
WITA 8	Inland-valley lowland	112	125	Tolerance to RYMV; high yield
WITA 9	Irrigated and inland-valley lowland	95	120	Tolerance to RYMV; high yield

environments, especially when rice is direct-seeded (irrigated systems) or where there is poor water control (a common problem in inland-valley lowlands). A range of NERICA lines is available, from which farmers can choose, especially if they are introduced using a Participatory Varietal Selection (PVS) procedure (Wopereis-Pura and Defoer, 2003).

Because of the diversity in soil types and degree of water control, and differences in farmers' objectives, it is crucial to involve farmers in the selection of varieties to ensure that such varieties respond to their needs.

WARDA uses a methodology that ensures farmer participation in varietal selection: Participatory Varietal Selection (PVS). PVS was initiated in Côte d'Ivoire in 1996 and adopted by the WARDA member countries from 1999 onwards. There are two types of PVS: PVS-research (PVS-R) and PVS-extension (PVS-E).

PVS-R is implemented and coordinated by researchers, in close collaboration with the farmers and the extension services. PVS-R leads the farmers to evaluate and select for themselves the varieties specifically adapted to their crop management conditions by using their own selection criteria. PVS-R runs as a three-year cycle. During the first year, 30 to 60 varieties are presented to the farmers in a rice garden. At different development stages, farmers are invited to visit and select the varieties they would like to grow in their own fields; they can then compare the performance of the different varieties according to their own evaluation criteria. During the second year, the farmers receive seeds of the varieties they chose. In the second year, the farmers grow their selected varieties for themselves, next to their traditional varieties. This enables them to determine whether they wish to continue to grow the new varieties. In the third year, the farmers buy the seeds of the varieties they have selected in order to cultivate them a second year in their own fields. PVS-R usually involves 40 to 60 farmers from two to four villages from the same site, representative of a given agro-ecological zone.

PVS-E is a two-year procedure, led and coordinated by extension services, NGOs or farmers' organizations, in close collaboration with the researchers working in PVS-R. PVS-E is designed to validate the PVS-R results with a larger number of farmers working more or less under the same conditions. The three or four varieties most frequently selected by the PVS-R farmers and the 10 main selection criteria identified during PVS-R are validated during PVS-E. This procedure usually involves about 500 farmers from 50 villages surrounding the PVS-R center.

The technical service in charge of proposing varieties for release and the community-based seed system (CBSS) are closely linked to PVS, in order to ensure seed supply for the varieties selected (Table 10.2, *see next page*).

## **Bibliography**

Wopereis-Pura, M. and T. Defoer, 2003. *Participatory Variety Selection (PVS): Facilitators' Guide*. Draft version. WARDA, Bouaké, Côte d'Ivoire.

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**Table 10.2. PVS-R, PVS-E and CBSS involvement in the seed selection–diffusion**

	Introduction	PVS-R	PVS- E	Homologation	CBSS
<b>Year 0</b>	Interesting varieties				
<b>Year 1</b>		↘ Rice garden			
<b>Year 2</b>		Year 1 of farmer tests			
<b>Year 3</b>		↘ Year 2 of farmer tests	↘ 3–4 most selected varieties compared with local variety	→ Year 1 multi-location experiments	→ Pre-basic seeds (station)
<b>Year 4</b>			↘ 3–4 most selected varieties compared with local variety	→ Year 2 multi-location tests and diffusion	→ Basic seeds (station)
<b>Year 5</b>					Beginning of CBSS program