MAJOR RICE DISEASES AND CONTROL

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Background

Three major diseases of key economic importance are common in West and Central Africa and seriously constrain rice production in most rice ecologies. They include the rice yellow mottle virus (RYMV), bacterial leaf blight (BLB) and rice blast.

Of the three diseases cited above, only blast is specific to the rainfed upland ecology for which the NERICA varieties were developed.

Diseases	**Rice ecosystems**			
	Upland	Lowland	Irrigated	
			Forest & savanna	Sahel
Blast				
RYMV				
BLB				

Blast is rice fungal disease caused by *Pyricularia grisea* (Cke.) Sacc. [Teleomorphe: *Magnaporthe grisea* (Hebert) Barr] and is particularly dangerous in upland rice, but also causes serious damage in rainfed lowland and irrigated systems. Blast is one of the major constraints to intensification.

Neck blast *Node blast* *Leaf blast*

Figure 24. Symptoms of leaf, neck and node blast on upland rice

Unit 1 – Integrated management of disease

Background information

In the low-input farming systems of SSA where resource-limited farmers can hardly ever afford external inputs, the control of the above diseases is mainly through the use of resistant/tolerant varieties in combination with sound management practices, such as good weed control. One of the principal components of an integrated management system for diseases is varietal resistance though this can be unstable in space and in time depending to the structure of the pathogen population.

This constraint should be taken into consideration either when diffusing material to farmers or when breeders are selecting donor lines.

Objective	Methodology	Results
To identify rice lines with durable resistance to blast in West Africa	67 entries were evaluated for horizontal resistance to blast in Burkina Faso, Nigeria, Mali and Guinea	1. WAB 56-104 2. WAB 56-50 3. NERICA9 4. NERICA18 5. WAB 881-1-10-37-18-25-P3-HB 6. WAB 880-1-38-18-8-P3-HB 7. WAB 881-10-37-18-15-P1-HB 8. WAB 881-10-37-18-24-P1-HB 9. WAB 881-10-37-18-14-P1-HB 10. WAB 880-1-38-20-23-P1-HB 11. WAB 880-1-38-18-20-P1-HB

Varietal resistance/tolerance to blast

Nine interspecifics, including NERICA9 and NERICA18, consistently show resistance to blast at various hotspots across four countries, namely Burkina Faso, Mali, Guinea and Nigeria.

NERICA12, NERICA15 and NERICA16 show resistance to blast in at least three countries, including Nigeria, Mali and Burkina Faso.

The resistance of the above interspecific lines is believed to be as stable and durable as that of WAB 56-50 and WAB 56-104, which are well known for possessing horizontal resistance to the blast pathogen in West Africa.