

# 氾濫低湿地で高位安定収量を示すイネ品種がある

## High-yielding and stable rice varieties in the flood plains of Upper Volta River in Ghana

白ボルタ川上流域(ガーナ)の氾濫低湿地における天水直播水稻の収量は、河川からの距離で大きく異なり、かつ年次間変動も大きい(図1)。このような環境下で Amankwatia、Bodia、Sakai(いずれもガーナ 在来品種)、IRBL9-W[RL] (日本-IRRI 共同プロジェクト研究育成系統)は安定して相対的に高収量を示す(図2)。本研究の成果は、氾濫程度の異なる4地点 (F1~F4)、3年間(2012~2014)にわたる栽培試験により得たものである。

The fertility of flood plains changes drastically according to the distance from rivers. In addition, there is a large annual environmental variation in the areas where crops are grown (Fig. 1). We tried to screen suitable rice varieties for the flood plains. Varieties that are stable in any environment are plotted near the origin. IRBL9-W[RL] (Japan-IRRI Project) and some local varieties such as Amankwatia, Bodia, and Sakai are in the top 20% in terms of yield among the tested varieties (Fig. 2). The experiments were conducted at 4 places, each experiencing different flood conditions in the year from 2012 to 2014.

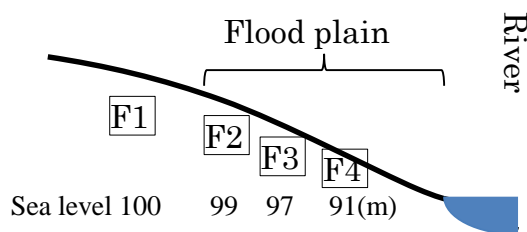
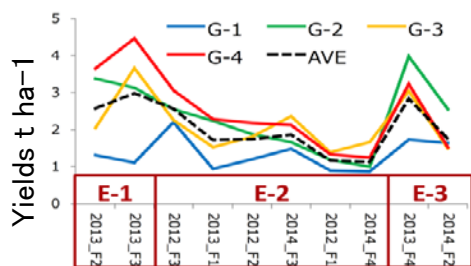
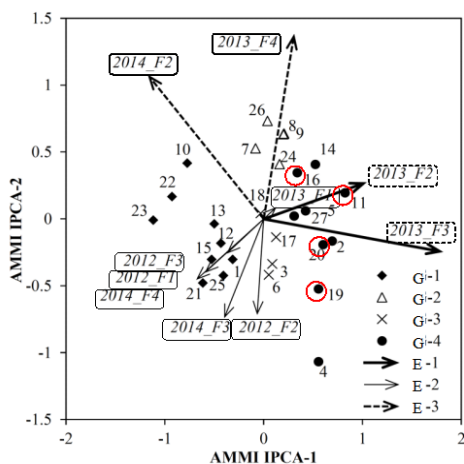


図1 環境群に対する品種群の平均収量  
(左) G-はクラスター分析による品種群を、E-は環境群を示す。  
(右) 試験地と河川との位置関係を、及び標高を示す。F4は約4年に1度の確率で冠水。  
Fig. 1. Average yields of genotype groups across in environment groups.  
G: Genotype by cluster analysis, E: Environment group



No.	Genotype	Species	Yield Character
<b>G-1 (Very stable but low yield)</b>			
1	CK40	<i>O. sativa</i>	1.91 Lowland
10	IR73020-19-2-8-3-2B	<i>O. sativa</i>	1.74 Submergence
12	N22	<i>O. sativa</i>	0.78 Upland
13	Nylon	<i>O. sativa</i>	1.38 Deepwater
15	Vandana	<i>O. sativa</i>	0.90 Upland
21	CG14	<i>O. glaberrima</i>	1.42 Lowland
22	Maia Noir IV	<i>O. glaberrima</i>	1.19 Deepwater
23	Yéié 1A	<i>O. glaberrima</i>	1.08 Deepwater
25	Séidou Bayebeli	<i>O. glaberrima</i>	1.66 Upland
<b>G-2 (High yield in E-3)</b>			
7	IR71700-247-1-1-2	<i>O. sativa</i>	2.12 Lowland
8	IR72431-5B-18-B-10-1	<i>O. sativa</i>	2.66 Elongation
9	IR73018-21-2-8-2-8	<i>O. sativa</i>	2.35 Submergence
24	Douboutou II	<i>O. glaberrima</i>	2.30 Lowland
26	Saigbéli	<i>O. glaberrima</i>	2.37 Deepwater
<b>G-3 (Standard)</b>			
3	IR07F323	<i>O. sativa</i>	2.01 AG + Sub1
6	IR67520-B-14-1-3-2-2	<i>O. sativa</i>	2.09 Submergence
17	Jasmin85	<i>O. sativa</i>	2.15 Lowland
18	Sikamo	<i>O. sativa</i>	2.25 Lowland
<b>G-4 (High yield especially in E-1)</b>			
2	IR07F297	<i>O. sativa</i>	2.39 AG + Sub1
4	IR42	<i>O. sativa</i>	2.76 Irrigated
5	IR11141-1-6-1-4	<i>O. sativa</i>	2.30 Elongation
11	IRBL9-W[RL]	<i>O. sativa</i>	2.61 Sub1
14	PSBRC80	<i>O. sativa</i>	2.18 Lowland
16	Amankwatia	<i>O. sativa</i>	2.75 Lowland
19	Bodia	<i>O. sativa</i>	2.60 Lowland
20	Sakai	<i>O. sativa</i>	2.59 Lowland
27	WAB1159-2-12-11-6-10	NERICA	2.44 Lowland

Red letters indicate the top 20% (>2.5t)

図2 AMMI分析による各品種の環境適応特性矢印で示される環境に対する各品種の適合度を示す。図の中心に近い品種は収量が特定環境に依存しない(安定)。○印の品種は中心近くでかつ収量も高い。

Fig. 2. Feature of each variety by AMMI\* analysis and the average yields of the varieties. Varieties that are stable in any environment are plotted near the origin.  
\* AMMI: additive main effect and multiplicative interaction

