rghum (Sorghum bicolor (L.) Moench) Varieties

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Abstract: *Dano* and *Lalo* are common names for sorghum (*Sorghum bicolor* (L.) Moench) with pedigree names of BRC-378 and BRC-245, respectively. They were developed and released by Bako Agricultural Research Center for western Ethiopia. At early breeding stage, *Dano* and *Lalo* were tested for three years at three locations and the mean grain yield of *Dano* was comparable with all location means of every season. In multi-location trials, *Lalo* was the best with 3.5 ton/ha grain yield. The mean yields of *Dano* and *Abamelko* were 2.7 and 3.2 tons/ha, respectively. Results of stability studies showed that *Dano* had above average and *Lalo* had good general adaptability. *Dano* and *Lalo* have maturity that is synchronized with that of the locals compared to that of standard check, which is earlier than the locals. *Dano* has good popping character, attractive seed color, stays green naturally and has potential for animal feed. *Dano* and *Lalo* have moderate resistance to anthracnose and leaf blight with uniform agronomic traits.

1. Agronomic and Morphological Characteristics

Dano and *Lalo* were selected for their uniform and good agronomic performance out of 195 brown seeded sorghum landraces collected from different districts. They are single stemmed varieties with a strong stalk, which make them better than *Abamelko* in lodging resistance. The maturity of *Dano* and *Lalo* is synchronized with that of the locals compared to that of the standard check, which is earlier than the locals. *Dano* and *Lalo* have low shattering characters and the stalks are dry. The summary of agronomic and morphological characters of *Dano* and *Lalo* is given in Table 1.

2. Yield Performance

Starting at early breeding stage, *Dano* and *Lalo* were tested for three years (2001-2003) at Bako, Gute and Boshe for their grain yield performance. Mean grain yield of *Dano* was comparable with all location means of every season and *Lalo* was the best in its grain yield performance. In multi-location trials for two years (2004 and 2005) across three locations (Bako, Boshe and Gute), *Lalo* was most productive with 3.5 tons/ha. The mean yields of *Dano* and the standard check, *Abamelko*, were 2.7 and 3.2 tons/ha, respectively. In on-farm trials, mean yields of 3.6 and 2.8 tons/ha were recorded for *Lalo* and *Abamelko*, respectively. In on-farm trials during 2006, mean yields of 3.5 tons/ha for *Lalo*, 3.3 tons/ha for *Dano* and 2.8 tons/ha for *Abamelko* were recorded. The results showed that *Lalo* was the most productive.

3. Stability Performance

Yield stability in ten sorghum varieties was studied for two years across three locations. In this study, *Dano* had less than unity regression coefficient, indicating it that has above average stability. *Lalo* had unity regression coefficient associated with high mean grain yield performance implying that it has good general adaptability.

4. Disease and Pest Reaction

Dano and *Lalo* are moderately resistant to the most important foliar diseases in the area, namely anthracnose and leaf blight (Table 2). *Abamelko* is earlier than the local varieties, at Bako it is exposed to bird damage. *Dano* has sweet seed test and needs planting in sorghum dominating areas otherwise it needs bird scaring.

5. Special Merits

Dano has good popping character, attractive seed color, stays green naturally and has potential as animal feed. In addition, it has high local demand.

6. Conclusions

Dano has reasonable grain yield, good agronomic traits, multipurpose uses, and high local demand. It has above average stability and it can be grown in an unfavorable environment. *Lalo* has high grain yield, good agronomic traits with wider adaptability. *Dano* and *Lalo* are moderately resistant to anthracnose and leaf blight. They have good synchronization in maturity with the locals. They are named after *Dano* and *Lalo* Districts known for their sorghum land race diversity and from where these varieties were collected.

7. Reference

Eberhart, S.A. and Russell, W.A. 1966. Stability parameters for comparing varieties. *Crop Science* 6: 36-40.

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acteristics of *Dano* and *Lalo* sorghum varieties.

	(*Dano*)	BRC-245 (*Lalo*)
Altitude (masl)	1500 - 1900	1500 - 1900
Rainfall (mm)	1100 - 1200	1100 – 1200
Fertilizer rate:		
DAP (kg/ha)	100	100
UREA (kg/ha)	100	100
Planting date	Late April to early May	Late April to early May
Seed rate (kg/ha)	10 (row planting)	10 (row planting)
Days to heading	132	129
Days to maturity	198	199
Panicle length (cm)	32	26
Plant height (cm)	350	300
Inflorescence compactness	Loose	Loose
Shattering character	Very low	Very low
Stalk juiciness	Dry	Dry
Leaf color after maturity	Stay green	Yellowish
Stalk color at maturity	-	Brown
100 kernels' weight (g)	2.4	2.9
Seed color	Light orange	Red
Popping type	Yes	No
Crop pest reaction	Resistant to major diseases and pests	Resistant to major diseases and pests
Yield (ton/ha):		
Research field	4.0-5.0	4.0-5.2
Farmer field	3.0-4.8	3.5-4.8
Year of release	March 2006	March 2006

Table 2. Sorghum varieties, *Dano* and *Lalo* disease incidences (1-9) scale for the years 2001 and 2002 across different locations.

Genotypes	Anthracnose (1-9)			Leaf blight (1-9)		
	Bako	Gute	Boshe	Bako	Gute	Boshe
BRC-378 (*Dano*)	4 (6)	4 (4)	4 (5)	4 (5)	3 (4)	2 (4)
BRC-245 (*Lalo*)	4 (5)	4 (5)	4 (4)	5 (5)	4 (4)	5 (4)
Abamelko	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	2 (1)

Numbers in parenthesis are disease incidences for 2002