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USAID/SAFGRAD/OAU-STRC/ICRISAT  
West and Central Africa Sorghum Research Network  
(WCASRN)

**1989 REGIONAL TRIALS  
SUMMARY OF RESULTS**

International Crops Research Institute for the  
Semi-Arid Tropics (ICRISAT)  
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West African Sorghum Improvement Program  
(WASIP)

B.P. 320, Bamako, MALI

1460

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## INTRODUCTION

The regional trials of the West and Central Africa Sorghum Research Network (WCASRN) is a joint effort between the Semi-Arid Food Grain Research and Development (SAFGRAD) of the Organization of African Unity's Scientific, Technical and Research Commission (OAU-STRC), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and the National Agricultural Research Systems (NARS). Five trials were conducted in 1989. The West African Sorghum Variety Adaptation Trials, early and medium duration cycles (WASVAT-early, WASVAT-medium) and the West African Sorghum Hybrid Adaptation Trial (WASHAT) were conducted for the fourth consecutive year in 1989. The West African Sorghum *Striga* Trial (WASST) and the West African Sorghum Leaf Disease Nursery (WASLDN) were organised for the second and third consecutive years, respectively. ICRISAT's West African Sorghum Improvement Programs in Mali (WASIP-Mali) multiplied and dispatched the seeds of WASVAT-early, WASVAT-medium, WASST, and WASDRN, whereas WASIP-Nigeria was responsible for organizing WASHAT.

The varietal and hybrid trials each consisted of 20 entries. In the case of WASVAT-early, entries were contributed by Cameroun, Senegal, Mauritania, and ICRISAT. Contributors of varieties to WASVAT-medium were Cameroun, Ghana, Niger, Senegal, Mauritania, Burkina Faso, Benin and ICRISAT. Only Niger and ICRISAT contributed to WASHAT. All 25 entries in WASLDN were either breeder's lines or germplasm from ICRISAT. WASST consisted of 12 entries of which 11 were from ICRISAT; the twelfth entry was the local control. Of the 18 test entries in WASVAT-early, only two were included in 1988. The remaining 16 were new entries. The trial had two controls. In the case of WASVAT-medium three of the 19 test entries were from the 1988 trial, whereas the rest were new entries. WASVAT-medium had one control. WASST had the same entries as 1988 whereas the 25 best entries from the 1988 WASLDN constituted the entries for WASLDN, 1989. The varietal and hybrid trials were grown as complete block designs with three replications, whereas WASLDN was grown as a 5 x 5 simple lattice replicated twice. The special checker-board design developed at ICRISAT Center in India was used for WASST, with three replications.

The objective of varietal and hybrid trials was to identify adapted sorghum genotypes with relatively high and stable yields across locations in West Africa. The best genotypes, with regards to yield and adaptation could then be used in the breeding programs of various NARS. The objectives of WASST and WASLDN were to identify genotypes with stable resistance to *Striga* and to the prevalent leaf diseases in the region, respectively. These genotypes may be used as sources of resistance in breeding programs.

WEST AFRICAN SORGHUM VARIETY ADAPTATION TRIAL-EARLY DURATION  
(WASVAT-EARLY)

The names and pedigree of the varieties and the country and institutions which contributed the varieties for WASVAT-early are given in Table 3. The trial was sent to 16 locations in 12 countries and results were received from 13 locations in nine countries. However, the coefficient of variation (CV) for yield data was high (>30%) in three of these locations and were not included in the general analyses of the results. They are given in annex 1. The yield data in  $t\ ha^{-1}$ , the time to 50% flowering in days, and plant height in meters are given in tables 4, 5, and 6, respectively. Mean yield for the 10 locations ranged from 1.27 to 2.85  $t\ ha^{-1}$ . Among the test varieties, ICSV 1079 had the highest mean yield of 2.74  $t\ ha^{-1}$ . The top four varieties, after ICSV 1079 BF were CS 61 (2.65  $t\ ha^{-1}$ ), ICSV 111 IN (2.55  $t\ ha^{-1}$ ), and ICSV 1172 BF (Table 4).

The control variety Nagawhite had the highest yield of 2.85  $t\ ha^{-1}$  of all the entries in the trial.

The mean time to 50% flowering for all entries was between 64 and 74 days. The earliest variety was ICSV 401 IN. Other early varieties were CE 196-7-2-1 and CS 54 (65 days), and ICSV 258 IN and CE 151-38-2 (66 days) (Table 5). Plant height varied from 1.4 to 2.4 m. Among the test varieties, Nabana Beida was the tallest and ICSV 1176 BF was the shortest (Table 6).

WEST AFRICAN SORGHUM VARIETY ADAPTATION TRIAL - MEDIUM DURATION  
(WASVAT-MEDIUM)

The names and pedigree of the varieties and country or institutions which contributed the varieties for WASVAT-Medium are given in Table 7. The trial was sent to 19 locations in 10 countries. The CV for yield data from three countries were too high (> 30%) and were not included in the analyses. These are given in Annex 1. In addition, the results from one location arrived after the preparation of this report. The results from that location are given in Annex 3. The yield data in  $t\ ha^{-1}$ , the time to 50% flowering in days, and plant height in meters are given in tables 8, 9 and 10, respectively. Mean yield for the nine locations ranged from 0.75  $t\ ha^{-1}$  to 2.37  $t\ ha^{-1}$ .

The top five varieties for mean yield across locations were ICSV 1171 BF (2.37  $t\ ha^{-1}$ ), F2-20 (2.34  $t\ ha^{-1}$ ), CS 95 (2.32  $t\ ha^{-1}$ ), ICSV 1089 BF (2.29  $t\ ha^{-1}$ ), and SEPON 82 (2.25  $t\ ha^{-1}$ ) (Table 8).

The mean time to 50% flowering for the test entries was between 72 and 97 days. The earliest variety was CS 95. Other early maturing varieties were BF 80-6/6-2-3 (74 days) and ICSV 1157 (77 days) (Table 9). Plant height ranged from 2.0 to 4 m. The tallest variety was NCV-1 (Table 10).

### WEST AFRICAN SORGHUM HYBRID ADAPTATION TRIAL (WASHAT)

Seeds of WASHAT were despatched to cooperators located in six countries of West Africa, namely, Burkina Faso, Cameroon, Côte d'Ivoire, Mali, Niger and Nigeria. Results of WASHAT 1989 were received from eight test locations.

ICSH 507 exhibited the highest mean grain yield of 3.66 t ha<sup>-1</sup> and ranked first while ICSH 780 and INRAN Sorghum Hybrid Tx 623 A x MR 732 obtained the second and third ranks, respectively. ICSH 89002 NG was another good yielding hybrid. The INRAN sorghum hybrid Tx 6233 A MR 732 was the best yielder at both the test locations of Niger. ICSH 89002 NG was the highest yielder at Guiring while ICSH 507 was the best yielder at Bagauda (Table 11).

Overall mean time to flower of the trial varied from 58 days (Guiring, Cameroon) to 79 days (Burkina Faso). The overall mean time to flower of the test hybrids ranged from 64 to 73 days (Table 12). Overall mean plant height of the test hybrids ranged from 1.68 m to 2.10 m. Late maturing and tall varieties of local origin were used as controls at Farako-Ba and Samanko (Table 13).

### LEAF DISEASE NURSERY AND *STRIGA* TRIAL

Although 10 sets of the nursery were sent to nine countries, results were received from only two countries. The scores for the 25 entries were given for gray leaf spot and leaf anthracnose at both sites. Twenty two out of 25 entries and all 25 entries had mean scores of less than 3 on a 1-6 scale, for anthracnose and gray leaf spot, respectively at both sites. The most resistant lines for both diseases included 84 S 82, 84 S 130, 84 S 103-2, and IS 3443.

The *Striga* trial was sent to nine countries and results were received from six countries. The promising lines for *Striga* resistance included ICSV 1001 BF, ICSV 1007 BF, ICSV 1164 BF, and IS 9830.

Table 1. List of collaborators of West African Sorghum trials - 1989 (continued).

Country	Locations	Trials	Scientists/Collaborators
Mali	Longorola	WASLDN	ICRISAT
	Cinzana	WASVAT-Early	N. Beninati, IER/ICRISAT, Sotuba, B.P. 438, Bamako O. Niangado, T. Niaba, B.P. 214, Segou, Mali
	Koulikoro	WASST	B. Dembélé, SRCVO, Sotuba, Bamako
Mauritanie	Kaedi	WASVAT-Early	S. R'chid, CNRADA, B.P. 22, Kaedi
Niger	Maradi	WASVAT-Early	I. Kapran, CNRA de Tarna, INRAN, B.P. 240, Maradi, Niger
	Lossa	WASVAT-Early WASHAT	J. Clark, INRAN, B.P. 429, Niamey, Niger
	Bengou	WASVAT-Medium	J. Clark, INRAN, B.P. 429, Niamey, Niger
	Tarna	WASHAT	J. Clark, INRAN, B.P. 429, Niamey, Niger
Nigeria	Bagauda	WASVAT-Early WASVAT-Medium WASHAT	D.S. Murty, ICRISAT, PMB 3491, Kano
	Samaru	WASHAT	C.C. Nwasike, IAR, ABU, PMB 1044, Samaru, Nigeria
	Badeggi	WASST	I. G. Akpan, NCRI, PMB 8, Bida, Niger state, Nigeria
Senegal	Bambey	WASVAT-Early	G. Trouche, ISRA/CNRA, B.P. 53, Bambey, Senegal
	Nioro	WASVAT-Medium	G. Trouche, ISRA/CNRA, B.P. 53, Bambey, Senegal
Sierra Leone	Rokupr	WASVAT-Early WASVAT-Medium	M.S. Jusu, D. Taylor, I.A.S. Kargbo, PMB 736, Freetown
Togo	Tantiegou	WASVAT-Medium	H. Reneaud, P. Toky, B.P. 218, Kara, Togo
	Broukou	WASST	H. Reneaud, P. Toky, B.P. 218, Kara, Togo

Table 1. List of collaborators of West African Sorghum trials - 1989.

Country	Locations	Trials	Scientists/Collaborators
Benin	Ino	WASVAT-Medium	Y.S. Dossou, URP Station de INA, B.P. 03, N'dali
Burkina Faso	Farako-Ba	WASVAT-Early	S. Da, Farako-Ba, B.P. 910, Bobo-Dioulasso et
		WASVAT-Medium	A. Neyra, Farako-Ba, B.P. 910, Bobo-Dioulasso
		WASHAT	
		WASLDN	
		WASST	
	Saria	WASVAT-Early	J. Chantereau, 01 B.P. 596, Ouagadougou
		WASVAT-Medium	
Cameroun	Guiring	WASVAT-Early	O.P. Dangi, R. Kenga, J. Beyo, IRA, B.P. 33, Maroua
		WASHAT	
		WASVAT-Medium	O.P. Dangi, T. Boulama, J. Beyo, IRA, B.P. 33, Maroua
	Ndonkole	WASST	O.P. Dangi, T. Beyo, R. Kenga, IRA, B.P. 33, Maroua
Côte d'Ivoire	Bouaké	WASHAT	F. Assamoi, IDESSA/DCV, 01 B.P. 635, Bouaké
Ghana	Nyankpala	WASVAT-Early	W. Frolich, S. Buah, P.O. Box 483, Tamale, Ghana
		WASVAT-Medium	
		WASST	
		WASLDN	
	Manga/Bawku	WASVAT-Early	W. Frolich, S. Buah, P.O. Box 483, Tamale, Ghana
		WASVAT-Medium	
Mali	Samanko	WASVAT-Early	K.V. Ramaiah, F. Coulibaly, B.P. 320, Bamako
		WASVAT-Medium	
		WASHAT	
	Sotuba	WASVAT-Medium	F. Beninati, A. Sy, S. Coulibaly, A.O. Traoré, IER/ICRISAT, B.P. 438, Bamako

**Table 2.** Geographic characteristics and climate of the locations where the 1989 regional trials were sent.

Locations	Longitude	Latitude	Trials	Date of planting	Overall rainfall in mm
Ina	2° 44F	9° 58'N	WASVAT-Medium	11-07-89	1164,1
Farako-Ba	-	-	WASVAT-Medium WASSLDN WASHAT WASST	11-07-89 08-07-89 21-07-89 10-07-89	615,6
Saria	2° 90'	12° 16'N	WASVAT-Early WASVAT-Medium	11-07-89 11-07-89	772,7
Guiring	-	-	WAVAT-Early WASHAT	21-06-89 03-07-89	705,8
Karewa	13°34'E	9°11'N	WASVAT-Medium	29-06-89	803
N'Donkole	14° E	10° 7'N	WASST	06-07-89	705,8
Bouake	-	-	WASHAT	25-07-89	643
Nyankpala	00°58'W	9°24'N	WASVAT-Medium WASVAT-Early WASLDN WASST	21-06-89 18-07-89 18-07-89 25-07-89	1514,3
Manga/Bawku	00°16'W	11°01'N	WASVAT-Early WASVAT-Medium	20-06-89 21-06-89	1018,6
Samanko	8° 7 W	12° 33N	WASVAT-Early WASVAT-Medium WASHAT	19-07-89 03-07-89 03-07-89	878
Sotuba	-	-	WASVAT-Medium WASHAT	08-07-89 03-07-89	2785,1
Longorola	-	-	WASLDN	06-07-89	783,7
Cinzana	3° 56W	13°18'N	WASVAT-Early	15-07-89	624,7
Koulikoro	-	-	WASST	21-07-89	-
Kaedi	15° 04	16° 09'	WASVAT-Early	20-08-90	-
Maradi	-	-	WASVAT-Early	25-06-90	579,4
Lossa	-	-	WASVAT-Early WASHAT	12-07-89 12-07-89	311,3
Bengou	3° 33E	11° 59N	WASVAT-Medium	26-06-90	651,5



**Table 2.** Geographic characteristics and climate of the locations where the 1989 regional trials were sent (continued).

Locations	Longi- tude	Lati- tude	Traisl	Date of planting	Overall rain- fall in mm
Tarna	-	-	WASHAT	26-06-89	547
Bagauda	-	12	WASVAT-Early WASVAT-Medium WASHAT	27-06-89 27-06-89 27-06-89	671,3
Samaru	-	-	WASHAT		
Badeggi	6° E	9° N	WASST	19-07-89	934,1
Bambey	16° 28'W	14° 42'N	WASVAT-Early	12-07-89	805,5
Nioro	15° 47'	13° 44'	WASVAT-Medium	05-07-89	824,6
Rokupr	12° 57'W	09° 01'N	WASVAT-Early WASVAT-Medium	06-06-89	2834,2
Tantiegou	0° 55'E	9° 45'N	WASVAT-Medium	17-07-89	1079,5
Broukou	0° 55'E	9° 45'N		06-07-89	1027

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**Table 3.** Composition of the West African Sorghum Variety Adaptation Trial, early duration (WASVAT-Early), rainy season 1989.  
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Entry number	Genotype	Program-Sender of the entry
1	CS 54	Cameroon
2	CS 61	Cameroon
3	CE 151-382	Senegal
4	CE 196-7-2-1	Senegal
5	Nabana Beida	Mauritania
6	Lekwere Bedha	Mauritania
7	ICSV 242 IN	Regional ICRISAT/Nigeria
8	ICSV 258 IN	"
9	ICSV 401 IN	"
10	ICSV 1079 BF	Regional ICRISAT/Mali
11	ICSV 1170 BF	"
12	ICSV 1177 BF	"
13	ICSV 1172 BF	"
14	ICSV 1174 BF	"
15	ICSV 1125 BF	"
16	ICSV 1175 BF	"
17	ICSV 1176 BF	"
18	Nagawhite (control)	Ghana
19	ICSV 111 IN (control)	ICRISAT
20	Local (control)	National program

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**Table 4.** Mean grain yield (t ha<sup>-1</sup>) of early duration varieties in the West African Sorghum Variety Adaptation Trial (WASVAT) from 10 locations grown in a randomized block design, three replications with plot size between 5.8 and 14.4 m<sup>2</sup>, rainy season, 1989.

Entries	L O C A T I O N S <sup>1</sup>										Mean											
	1	2	3	4	5	6	7	8	9	10												
ICSV 1079 BF	2.84	2	3.18	2	3.24	7	2.29	4	2.40	6	2.74	13	4.83	2	3.18	1	1.45	1	2.71	3	2.74	
CS-61	2.99	4	1.94	18	3.54	2	2.40	1	1.96	11	3.24	8	4.98	1	2.96	3	1.25	4	2.57	8	2.65	
ICSV 111 IN	2.38	9	2.70	7	3.16	9	1.99	10	1.60	16	3.33	7	4.73	3	2.72	6	1.37	2	2.89	1	2.55	
ICSV 1172 BF	2.55	7	3.16	3	3.25	6	1.83	14	2.00	10	3.46	5	4.59	4	2.48	9	0.46	19	2.28	11	2.47	
CS-54	2.73	6	2.68	8	3.28	5	1.91	13	2.02	9	2.69	14	3.96	10	2.84	4	1.12	5	2.79	2	2.45	
ICSV 1177 BF	2.10	12	3.46	1	3.10	10	2.40	3	1.90	12	2.75	12	3.90	13	2.03	15	0.94	9	2.71	3	2.44	
ICSV 1176 BF	3.03	3	2.75	6	2.60	16	2.03	8	2.67	4	3.42	6	3.84	14	2.51	8	0.80	11	2.11	13	2.40	
ICSV 401 IN	3.17	2	2.44	13	2.61	15	2.16	6	2.48	5	2.61	15	4.29	6	2.97	2	0.96	8	1.90	15	2.38	
ICSV 1125 BF	2.13	10	2.54	10	2.89	12	1.92	12	1.79	13	3.50	3	4.47	5	2.41	10	0.72	15	2.23	12	2.37	
ICSV 242 IN	2.08	14	2.45	12	2.54	18	2.00	9	2.81	2	3.48	4	3.97	9	2.01	16	0.65	16	2.66	5	2.35	
CE 151-382	2.52	8	1.95	17	3.22	8	2.42	2	1.76	14	2.38	17	3.91	12	2.52	7	1.01	6	2.54	9	2.31	
ICSV 1170 BF	3.25	1	2.46	11	3.37	4	2.00	9	2.13	8	1.67	18	3.91	12	2.23	11	0.79	12	2.23	12	2.30	
CE-196-7-2-1	2.09	13	2.16	16	2.94	11	2.22	5	1.71	15	3.22	9	4.20	7	2.11	14	1.28	3	3.06		2.24	
ICSV 1174 BF	2.12	11	2.45	12	2.56	17	1.82	15	1.33	17	3.15	10	3.66	15	2.19	13	0.76	13	2.64	6	2.20	
ICSV 258 IN	1.72	16	2.77	5	1.81	20	1.96	11	2.96	1	3.04	11	3.57	16	2.11	14	0.65	16	2.60	7	2.20	
ICSV 1175 BF	1.20	18	2.55	9	2.66	14	2.12	7	1.96	11	2.50	16	3.35	17	2.20	12	0.61	17	2.08	14	2.00	
Lekwere Bedha	1.28	17	1.89	19	2.84	13	1.49	18	0.69	19	0.75	19	2.26	18	0.35	18	0.53	18	1.19	16	1.32	
Nabana Beida	1.13	19	2.43	14	2.18	19	1.75	16	1.15	18	0.64	20	1.81	19	0.39	17	0.61	17	*		1.27	
Controls																						
Nagawhite	2.73	6	2.95	4	3.75	1	2.67	1	2.73	3	5.49	1	4.15	8	2.51	8	0.75	14	2.49	10	2.85	
Local	2.01	15	2.28	15	3.38	3	1.72	17	2.17	7	4.53	2	3.93	11	2.75	5	0.83	10	2.67	4		
SE	± 0.32		± 0.20		± 0.18		± 0.18		± 0.26		± 0.43		± 0.36		± 0.14		± 0.29		± 0.21			
Mean	2.30		2.55		2.95		2.06		1.96		2.93		3.92		2.27		0.88		2.40			
(20 entries)																						
CV (%)	24		18		11		15		23		25		16		22		28		26			

1. Locations: 1 = Farako-Ba, 2 = Saria in Burkina Faso; 3 = Guiring in Cameroon; 4 = Cinzana, 5 = Samanko in Mali; 6 = Maradi in Niger; 7 = Bagauda in Nigeria; 8 = Nyankpala, 9 = Manga Bawku in Ghana; 10 = Bambey in Senegal. Grain weight for Nabana Beida in all replications varied a lot in Senegal and were not included in the analysis.

\* Missing data

**Table 5.** Number of days to 50% flowering of early duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Early) at 10 locations, rainy season, 1989.

Varieties	B. Faso Farako-Ba	B. Faso Saria	Cameroun Guiring	Ghana Manga-Bawku	Ghana Nyankpala	Mali Samanko	Mali Cinzana	Mauritanie Kaedi	Niger Lossa	Niger Maradi	Nigeria Bagauda	Senegal Bamby	S. Leone Rokupr	Mean
Nabana Beida	79,67	59,00	75,33	79,33	78,00	70,67	73,33	56,67	83,33	83,00	75,33	76,00	73,00	75
Lekwere Bedha	77,64	57,67	75,67	80,00	78,00	70,00	68,67	52,00	82,33	82,67	75,67	78,33	71,00	73
ICSV 1174	74,33	59,67	67,67	75,00	68,00	65,67	66,10	50,67	75,33	71,00	67,67	68,67	81,67	69
ICSV 1172	79,00	58,00	71,67	82,00	70,00	69,33	70,00	58,67	83,00	76,67	71,67	73,33	73,67	72
ICSV 1125	77,33	56,00	69,33	79,67	68,00	67,33	69,00	55,00	80,33	71,33	69,33	70,00	83,67	70
ICSV 111 IN	68,00	60,33	62,67	66,00	70,00	62,00	62,00	53,67	73,33	73,33	62,67	68,33	81,00	66
ICSV 1175	75,33	56,00	76,00	81,00	73,33	72,00	72,33	54,33	84,33	77,00	76,00	70,67	72,00	72
ICSV 1170	72,33	54,33	69,00	68,33	71,67	60,33	63,33	53,00	74,33	78,33	69,00	70,00	70,33	67
CS-61	68,00	53,67	62,67	68,33	69,00	62,67	62,67	56,00	76,00	74,00	62,67	68,67	80,67	67
ICSV 258 IN	79,67	54,33	73,33	82,33	66,00	65,67	69,00	55,33	79,33	74,33	73,33	70,67	77,00	71
ICSV 1177	74,00	56,00	68,00	74,67	68,00	64,67	63,33	56,67	79,67	74,00	68,00	68,67	86,67	69
CS-54	67,67	56,00	59,33	67,67	71,67	62,00	62,67	54,33	72,67	74,00	62,67	68,33	73,33	66
CE 151-382	70,00	55,00	64,67	63,67	71,33	62,00	62,00	53,67	73,33	73,00	62,67	69,00	76,67	66
ICSV 1079	70,67	55,67	67,33	75,00	70,00	64,67	64,33	56,33	75,33	74,00	67,33	68,00	78,67	68
CE 196-7-2-1	67,00	55,00	63,00	62,67	71,00	58,33	63,33	44,67	73,33	74,67	63,00	66,67	80,33	66

**Table 5.** Number of days to 50% flowering of early duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Early) at 10 locations, rainy season, 1989 (continued).

Varieties	B. Faso Farako- Ba	B. Faso Saria	Camerou n Guiring	Ghana Manga- Bawku	Ghana Nyank pala	Mali Samanko	Mali Cinzan a	Mauri tanie Kaedi	Niger Lossa	Niger Maradi	Nigeria Bagauda	Seneg al Bambe y	S. Leone Rokup r	Mean
ICSV 401 IN	71,33	52,33	62,67	67,00	64,00	63,67	64,33	51,00	68,67	64,67	62,67	64,00	75,67	64
ICSV 242 IN	79,67	54,67	74,67	81,67	71,33	70,00	73,00	53,67	81,67	73,67	74,67	70,33	78,67	72
ICSV 1176	73,00	61,00	66,33	72,67	66,00	62,00	63,33	52,00	78,33	69,00	66,33	64,33	70,00	67
<b>Controls</b>														
Nagawhite	67,00	59,00	65,67	63,00	67,67	58,00	62,67	55,33	73,67	73,33	65,67	69,00	88,67	67
Local	72,33	56,67	64,33	65,33	65,00	75,00	63,33	55,67	71,67	66,67	64,33	67,00	84,33	67
SE ( $\pm$ )	1,65	3,27	1,08	0,74	1,81	0,78	1,13	3,34	1,69	1,05	0,71	0,96	4,02	
Mean	73,23	56,57	67,97	72,77	70,05	65,18	65,94	53,68	76,97	74,13	68,13	69,35	77,77	
CV (%)	4	10	3	2	4	2	3	11	4	2	2	2	9	

**Table 6.** Mean plant height (m) of early genotypes in the West African Sorghum Variety Adaptation Trial (WASVAT-Early) at 10 locations, rainy season, 1989.

Varieties	B. Faso Farako-Ba	B. Faso Saria	Cameroun Guiring	Ghana Manga-Bawku	Ghana Nyankpala	Mali Samanko	Mali Cinzana	Mauritanie Kaedi	Niger Lossa	Niger Maradi	Nigeria Bagauda	Senegal Bambey	S. Leone Rokupur	Mean
Nabana Beida	2,81	2,47	2,91	2,07	*	2,41	2,50	1,75	2,35	2,48	2,80	2,72	1,75	2,56
Lekwere Bedha	2,76	2,33	2,78	2,10	*	2,31	2,88	1,67	1,85	2,71	2,78	2,73	1,73	2,39
ICSV 1174	2,36	2,26	2,24	1,95	2,22	2,65	2,55	1,76	2,18	2,08	2,43	2,36	1,54	2,20
ICSV 1172	2,33	2,04	2,20	1,97	1,87	2,25	2,19	1,81	1,98	1,93	2,45	2,08	1,59	2,08
ICSV 1125	1,96	1,96	2,40	1,82	2,09	2,08	2,31	2,07	1,75	2,13	2,28	2,16	1,69	2,08
ICSV 111 IN	2,13	1,85	2,16	1,86	1,99	2,13	2,07	1,62	2,50	1,46	2,28	1,85	1,71	2,05
ICSV 1175	2,15	1,95	2,34	1,79	1,97	2,06	2,25	1,53	1,82	1,68	2,40	1,91	1,80	1,97
ICSV 1170	1,91	1,96	2,15	1,77	2,16	2,13	2,22	1,76	1,75	1,96	2,30	1,91	1,55	1,98
CS-61	2,16	2,00	1,93	1,99	1,59	2,26	2,14	1,65	2,01	1,70	2,26	1,93	1,37	1,96
ICSV 258 IN	2,10	2,07	1,88	1,90	1,67	2,15	2,06	1,81	1,91	1,61	2,36	2,00	1,59	1,93
ICSV 1177	1,93	1,99	2,28	1,80	2,26	2,16	2,27	2,05	1,76	1,90	2,28	2,15	1,37	1,93
CS-54	1,90	1,88	1,93	1,71	1,97	1,81	1,81	2,06	1,52	1,87	1,85	1,93	1,36	2,02
CE 151-382	1,91	1,92	1,93	1,84	1,73	1,85	2,09	1,64	1,75	1,41	2,12	1,90	1,40	1,87
ICSV 1079	1,83	1,63	1,87	1,65	1,95	1,65	1,91	1,59	1,74	1,76	2,08	1,90	1,53	1,81
CE 196-7-2-1	67,00	55,00	63,00	62,67	71,00	58,33	63,33	44,67	73,33	74,67	63,00	2,00	80,33	1,88

\* Missing data

**Table 6.** Mean plant height (m) of early genotypes in the West African Sorghum Variety Adaptation Trial (WASVAT-Early) at 10 locations, rainy season, 1989 (continued).

Varieties	B. Faso Farako-Ba	B. Faso Saria	Cameroun Guiring	Ghana Manga-Bawku	Ghana Nyankpala	Mali Samanko	Mali Cinzana	Mauritanie Kaedi	Niger Lossa	Niger Maradi	Nigeria Bagauda	Senegal Bamy	S. Leone Rokupr	Mean
ICSV 401 IN	1,91	1,76	1,55	1,67	1,63	1,90	1,97	1,33	1,55	1,46	2,05	1,56	1,64	1,69
ICSV 242 IN	1,85	1,60	1,45	1,81	1,73	1,76	1,65	1,56	1,49	1,38	1,88	1,56	1,53	1,63
ICSV 1176	1,41	1,40	1,36	1,47	1,38	1,53	1,57	1,24	1,36	1,25	1,55	1,46	1,59	1,43
Controls														
Nagawhite	1,86	1,82	2,13	1,77	2,04	1,98	2,20	1,61	1,84	1,96	1,26	1,83	1,68	1,85
Local	3,63	1,36	2,17	1,65	1,90	4,10	1,89	1,60	2,25	2,60	2,23	1,85	1,37	2,20
SE ( $\pm$ )	0,06	0,06	0,18	0,91	0,14	0,05	0,11	0,14	0,08	0,96	0,11	0,12	0,13	
Mean	2,17	1,91	2,10	1,83	1,88	2,17	2,15	1,68	1,89	1,85	2,25	1,96	1,57	
CV (%)	5	5	15	9	13	4	8	14	7	9	8	10	14	

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**Table 7.** Composition of the West African Sorghum Variety Adaptation Trial, medium duration (WASVAT-Medium), rainy season 1989.  
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Entry number	Genotype	Program-Sender of the entry
1	CS 95	Cameroon
2	CS 85	Cameroon
3	NSV-1	Ghana
4	SEPON-82	Niger
5	F2-20	Senegal
6	Takmalit	Mauritania
7	Niobougou	Maritania
8	BF 80-10/6-2-3	Burkina Faso
9	BF 82-3/25-1-1	Burkina Faso
10	BF 82-4/4-1-1	Burkina Faso
11	IS 6928	Reg ICRISAT/Nigeria
12	IS 23526	"
13	IS 22380	"
14	ICSV 1163 BF	Reg ICRISAT/Mali
15	ICSV 1157 BF	"
16	ICSV 1171 BF	"
17	Blanc de Karimana	Benin
18	ICSV 1063 BF (control)	ICRISAT
19	ICSV 111 IN (control)	ICRISAT
20	Local (control)	National program

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**Table 8.** Mean grain yield ( $t\ ha^{-1}$ ) of medium duration varieties in the West African Sorghum Variety Adaptation Trial (WASVAT-Medium) from 10 locations grown in a randomized block design, three replications with plot size between 6 and 14.4  $m^2$ , rainy season, 1989.

Entries	L O C A T I O N S <sup>1</sup>																		Mean	
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
ICSV 1171 BF	3.71	1	2.74	2	1.84	1	1.20	4	2.71	3	4.03	3	2.68	8	4.83	1	0.18	11	2.37	
F2-20	2.91	9	2.78	1	1.32	8	1.32	2	2.73	2	3.50	6	2.41	11	4.45	5	0.32	3	2.34	
CS-95	2.45	13	2.66	3	1.63	3	1.30	3	2.50	7	4.35	1	2.58	9	4.78	2	0.42	1	2.32	
ICSV 1089 BF	2.94	8	1.97	12	1.51	5	1.00	8	2.42	9	3.48	7	2.81	7	4.03	10	0.07	15	2.29	
SEPON-82	3.32	2	2.35	6	1.67	2	1.15	5	2.65	5	4.31	2	2.93	4	4.44	6	0.18	11	2.25	
ICSV 1163 BF	3.03	6	2.42	5	1.54	4	1.32	2	2.23	12	3.73	4	2.83	6	4.74	3	0.24	6	2.17	
BF-82-4/4-1-1	2.98	7	2.29	8	1.39	7	1.20	4	2.83	1	2.38	12	2.41	11	4.14	9	0.22	7	2.14	
ICSV 1063 BF	2.65	11	2.19	10	1.40	6	1.13	6	2.58	6	3.38	8	3.38	2	3.83	11	0.21	8	2.11	
ICSV 1157 BF	2.64	12	2.32	7	0.68	14	1.12	7	2.17	13	3.63	5	2.50	10	4.32	7	0.26	5	2.06	
CS-85	3.09	4	1.83	13	1.32	8	0.52	15	2.38	10	3.21	9	3.48	1	4.54	4	0.14	12	2.04	
IS 6928	3.06	5	2.16	11	0.83	11	0.71	12	2.46	8	2.46	10	2.85	5	3.37	13	0.30	4	1.97	
BF-80-6-2-3	2.06	16	2.28	9	1.17	10	0.87	10	2.17	13	3.50	6	2.29	13	4.32	7	0.39	2	1.88	
BF-82-3/25-1-1	3.03	6	1.38	16	0.70	13	0.77	11	2.67	4	2.38	12	2.98	3	3.42	12	0.09	14	1.80	
IS 22380	2.67	10	2.42	5	0.73	12	0.96	9	2.29	11	2.42	11	2.36	12	3.14	14	0.07	15	1.78	
IS 23526	3.12	3	1.61	14	0.48	15	0.54	14	1.71	14	2.15	13	2.18	14	2.49	15	0.12	13	1.57	
Niobougou	1.69	18	1.53	15	0.32	16	0.62	13	0.46	17	1.77	15	1.45	16	1.21	16	0.12	13	1.00	
NSV-1	1.87	17	1.32	18	*		0.28	17	1.46	15	1.56	16	1.11	18	*		0.19	10	1.00	
Blanc de Karimana	2.34	15	0.33	19	*		0.05	18	0.50	18	0.29	18	1.25	17	*		0.06	16	0.83	
Takmalit	1.41	19	1.36	17	0.13	17	0.43	16	0.35	19	0.92	17	1.66	15	#		0.20	9	0.75	
Témoin																				
Local	2.35	14	2.65	4	1.31	9	1.39	1	1.44	16	1.79	14	0.26	19	4.16	8	0.24	6	1.85	
SE	± 0.31		± 0.26		± 0.19		± 0.15		± 0.22		± 0.32		± 0.37		± 0.17		-			
Moyenne (20 entrées)	2.67		2.00		1.11		0.89		2.04		2.76		2.32		3.89		0.20			
CV (%)	20		22		30		30		18		20		28		13		25			

1. Locations: 1 = Farko-Ba, 2 = Saria in Burkina Faso; 3 = Manga Bawku in Ghana; 4 = Sotuba, 5 = Samanko in Mali; 6 = Bengou in Niger; 7 = Bagauda in Nigeria; 8 = Niore in Senegal; 9 = Tantieou in Togo.

\* Missing data

# Rejected data

**Table 9.** Number of days to 50% flowering of medium duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Medium) at 10 locations, rainy season, 1989.

Varieties	B. Faso Farako-Ba	B. Faso Saria	Cameroun Karewa	Ghana Nyankpala	Ghana Manga-Bawku	Mali Sotuba	Mali Samanko	Niger Bengou	Nigeria Bagauda	Sengal Niore	S.Leone Rokupr	Togo Tantie gou	Mean
ICSV 1171	72,00	76,00	75,00	91,00	71,33	81,00	74,00	-	74,67	74,00	82,00	109,00	80
F2-20	72,67	70,00	66,33	82,33	80,00	76,67	72,67	-	74,67	73,67	79,33	108,33	78
CS-95	64,00	61,33	60,33	77,33	73,33	72,33	69,67	-	68,33	67,33	68,00	109,33	72
ICSV 1089	72,33	79,33	71,00	90,33	70,00	84,33	72,33	-	74,67	71,33	85,00	110,00	80
SEPON-82	74,00	74,00	73,67	91,00	75,00	82,67	71,67	-	73,67	69,00	85,67	106,00	80
ICSV 1163	74,67	75,00	80,00	92,33	73,33	81,00	72,33	-	74,33	70,67	89,67	110,33	81
BF 82-4/4-1-1	68,67	73,67	69,33	83,00	73,33	76,00	71,67	-	77,00	71,33	86,00	108,67	78
ICSV 1063	69,67	73,33	65,67	83,67	76,67	75,67	74,33	-	74,67	74,00	80,33	109,00	78
ICSV 1157	67,67	70,33	67,00	82,00	75,00	76,00	73,00	-	72,33	71,33	82,00	108,67	77
CS-85	74,33	76,33	79,67	89,67	76,00	86,00	73,67	-	77,67	72,67	79,33	110,33	81
IS 6928	71,33	77,00	77,33	89,33	86,67	81,33	74,67	-	78,67	79,67	88,67	108,33	83
BF 80-16/6-2-3	65,00	68,33	64,33	77,67	73,33	73,00	70,67	-	69,33	72,33	69,00	108,33	74
BF 82-3/25-1-1	70,33	77,00	73,00	89,33	86,67	82,33	74,33	-	78,00	78,00	86,33	111,00	82
IS 22380	70,67	76,00	66,33	88,67	86,67	79,33	74,33	-	78,33	81,00	79,33	107,67	81
IS 23526	73,67	79,00	85,33	91,33	86,67	85,67	78,33	-	79,33	79,00	92,33	112,33	86
Niobougou	76,33	78,67	77,00	89,67	90,67	83,00	83,33	-	79,00	82,33	105,67	108,33	87
NSV-1	82,33	82,00	86,00	102,00	103,00	80,67	89,33	-	88,00	65,66	105,33	108,33	79
Blanc de Karimana	85,67	86,33	85,67	107,67	103,00	90,67	89,33	-	92,00	20,00	125,33	106,33	94
Takmalit	84,33	81,33	85,33	101,33	103,00	87,33	88,00	-	87,00	93,66	114,33	110,67	94

**Table 9.** Number of days to 50% flowering of medium duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Medium) at 10 locations, rainy season, 1989 (continued).

Local control	76,67	73,33	60,33	103,67	70,00	77,67	85,00	-	97,00	71,33	169,00	105,33	90
SE ( $\pm$ )	1,4	1,64	3,06	2,08	2,32	2,59	0,66	-	1,4	0,98	0,88	1,76	1,71
Mean	73,32	75,42	73,42	90,17	81,68	80,63	76,63	-	78,43	74,06	92,63	108,87	82,30
CV (%)	3	4	7	4	5	6	1	-	3	4	2	3	4

**Table 10.** Mean plant height (m) of medium duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Medium) at 9 locations, rainy season, 1989.

Varieties	B. Faso Farako-Ba	B. Faso Saria	Cameroun Karewa	Ghana Nyankpala	Ghana Manga-Bawku	Mali Sotuba	Mali Samankoro	Niger Bengou	Nigeria Bagauda	Sengal Niore	S.Leone Rokupr	Togo Tantie gou	Mean
ICSV 1171	2,50	2,22	4,59	2,07	2,00	2,37	4,82	3,84	2,43	2,51	1,70	3,18	2,85
F2-20	2,46	2,26	2,34	2,23	1,96	2,33	2,44	2,32	2,46	2,46	1,60	2,29	2,30
CS-95	2,25	2,09	2,40	2,13	1,89	2,21	2,45	2,16	2,16	2,85	1,62	2,51	2,23
ICSV 1089	2,36	2,11	2,73	2,12	1,83	2,20	2,30	2,09	2,35	2,55	2,14	2,57	2,28
SEPON-82	2,01	1,91	2,04	1,83	1,62	1,73	1,97	2,59	2,00	1,98	1,54	2,53	2,00
ICSV 1163	2,56	2,20	2,65	2,03	1,95	2,36	2,48	2,69	2,61	2,90	1,71	2,67	2,40
BF 82-4/4-1-1	2,23	2,16	2,46	1,88	1,93	2,06	2,29	2,24	2,18	2,50	1,73	2,49	2,20
ICSV 1063	2,16	2,93	2,56	1,92	1,91	1,93	2,38	2,29	2,35	2,65	1,59	2,57	2,30
ICSV 1157	2,15	1,96	2,23	1,96	1,76	2,03	2,00	2,07	2,16	2,36	1,54	2,69	2,10
CS-85	3,08	2,42	2,87	2,50	2,28	2,53	2,77	2,56	2,76	2,85	1,72	2,04	2,53
IS 6928	2,45	2,49	2,73	2,34	*	2,51	2,91	3,12	2,46	3,30	1,71	2,51	2,60
BF 80-16/6-2-3	2,21	2,14	2,44	1,75	1,75	2,07	2,35	2,06	2,30	2,76	1,88	2,54	2,20
BF 82-3/25-1-1	2,45	2,11	2,16	2,13	2,07	2,06	2,36	2,50	2,45	2,68	1,99	2,37	2,30
IS 22380	2,46	2,28	2,30	2,25	1,87	2,28	2,55	2,41	2,38	2,58	1,78	2,38 7	2,30
IS 23526	2,91	2,66	2,93	2,98	2,34	2,70	2,36	2,98	2,96	3,23	2,58	2,69 3	2,90
Niobougou	3,10	2,63	2,93	2,65	*	2,90	2,67	3,16	3,08	3,41	1,91	2,73	2,83
NSV-1	4,21	3,88	4,82	4,42	*	3,93	4,90	3,02	3,61	*	*	2,42	3,91
Blanc de Karimana	4,26	3,84	4,59	4,18	*	3,26	4,82	3,84	3,60	*	*	3,18	3,95
Takmalit	3,11	2,56	3,22	2,75	*	2,81	3,19	3,32	3,30	3,57	*	2,52	3,28

\* Missing data

**Table 10.** Mean plant height (m) of medium duration genotypes in the West African Sorghum Variety Adaptation Trial ((WASVAT-Medium) at 9 locations, rainy season, 1989. (continued).

Local control	4,10	1,86	2,26	4,09	1,80	1,45	4,45	3,73	3,76	2,71	2,84	2,38	2,95
SE ( $\pm$ )	0,09	0,10	0,18	0,15	0,06	0,18	0,11	0,19	0,12	0,05	0,50	0,10	
Mean	2,75	2,38	2,75	2,51	1,93	2,38	2,85	2,64	2,67	2,72	1,85	2,55	
CV (%)	5	7	12	10	7	13	6	13	8	6	5	7	

Table 11. Mean grain yield (t ha<sup>-1</sup>) of test hybrids in the West African Sorghum Hybrid Adaptation Trial (WASHAT) - 1989 at eight locations, rainy season, 1989.

Cultivar	Bagauda	Guiring	Tarna	Sotuba	Samanko	Bouake	FarakoBa	Lossa / Mean	
ICSH 230	4.84	7.04	3.60	3.56(2)	2.7	1.62(4)	1.38(5)	1.81 3.32	
ICSH 232	5.05(5)	7.18(6)	3.34	3.33	2.80	1.15	1.36(6)	1.39 3.20	
ICSH 642	4.89	7.16	3.82	2.81	2.91	1.47(6)	1.35	1.88(5) 3.29	
ICSH 780	5.43(2)	7.54(3)	3.48	3.32	3.40(5)	1.43	1.47(4)	2.74(2) 3.60(2)	
ICSH 89001 NG	4.89	7.06	4.27	2.33	2.98	2.09(1)	1.79(2)	2.29(3) 3.46(5)	
ICSH 479	5.23(4)	7.21	3.61	3.54(4)	2.89	1.02	1.56(3)	1.81 3.36	
ICSH 88038	3.57	6.58	4.47(5)	3.35	2.56	1.44	0.90	1.86(6) 3.09	
ICSH 88039	4.57	6.49	4.40	2.93	2.67	1.18	0.84	2.05(4) 3.14	
ICSH 507	5.48(1)	7.64(2)	4.84(2)	3.40	2.93	2.08(2)	1.22	1.70 3.66(1)	
ICSH 89002	4.92(6)	7.98(1)	4.41(6)	3.41(6)	3.51(3)	1.51(5)	1.14	1.67 3.57(4)	
ICSH 330	4.19	7.36(4)	3.70	3.19	3.60(1)	1.40	0.87	1.70 3.25	
ICSH 646	0.97	3.77	1.24	1.82	0.93	0.10	0.18	0.38 1.17	
ICSH 88042	4.85	7.20(5)	3.45	2.51	3.53(2)	1.01	1.07	1.81 3.18	
ICSH 89003 NG	4.67	6.91	4.11	3.53(5)	3.49(4)	1.21	0.87	1.60 3.30	
ICSH 89004 NG	4.40	5.82	4.71(3)	3.60(3)	3.20(6)	1.36	0.96	1.60 3.21	
Tx 623A x MR 732 (INRAN Sorghum Hybrid)	4.33	6.95	5.33(1)	3.71(1)	3.07	1.34	1.03	2.92(1) 3.58(3)	
Tx 631A x SUCR 36 (INRAN Sorghum Hybrid)	5.34(3)	6.92	4.01	2.74	2.98	1.10	0.64	1.63 3.17	
Controls									
ICSH 109	4.21	6.00	4.55(4)	2.69	3.09	1.06	0.49	1.81 2.99	
ICSH 111	3.34	6.07	3.55	2.44	3.00	1.95(3)	1.82(1)	1.63 2.98	
LOCAL <sup>1</sup>	4.69	6.65	3.62	3.07	1.44	1.08	0.93	1.08 2.82	
SE+	+0.815	+0.537	+0.370	+0.550	+0.308	+0.396	+0.410	+0.530	
MEAN	4.49	6.80	3.93	3.06	2.88	1.33	1.09	1.77	3.17
CV %	18.1	7.9	16.3	17.9	10.7	29.7	37.4	30.0	

1. The local control variety was different at various locations.

Table 12. Mean number of days to 50% flowering of test hybrids in the West African Sorghum Hybrid Adaptation Trial (WASHAT) - 1989 at eight locations, rainy season, 1989.

Cultivar	Bagauda	Guiring	Tarna	Samanko	Sotuba	Bouake	FarakoBa	Lossa / Mean	
ICSH 230	65	57	70	69	64	69	79	69	68
ICSH 232	63	58	70	69	66	72	75	70	68
ICSH 642	63	56	66	67	62	73	77	67	66
ICSH 780	61	55	64	64	62	67	74	62	64
ICSH 89001 NG	62	55	66	65	63	66	70	66	64
ICSH 479	66	58	73	70	68	72	80	74	70
ICSH 88038	69	59	72	70	65	72	79	72	70
ICSH 88039	70	58	72	69	68	71	81	72	70
ICSH 507	64	55	69	66	65	64	76	70	66
ICSH 89002 NG	67	59	71	70	67	71	78	74	70
ICSH 330	69	59	74	69	69	72	83	74	71
ICSH 646	73	58	75	72	72	68	88	80	73
ICSH 88042	67	59	73	69	70	71	79	72	70
ICSH 89003 NG	68	58	73	69	69	70	82	75	71
ICSH 89004 NG	65	56	67	66	65	67	78	73	67
Tx 623A x MR 732 (INRAN Sorghum Hybrid)	68	59	67	67	66	70	79	68	68
Tx 631A x SUCR 36 (INRAN Sorghum Hybrid)	67	61	72	70	66	71	84	72	70
Controls									
ICSH 109	66	59	71	68	67	70	80	72	69
ICSV 111	64	60	74	67	66	62	69	69	66
LOCAL <sup>1</sup>	65	61	67	84	66	60	79	77	70
SE±	+2.2	+1.6	+1.0	+1.5	+1.9	+4.3	+3.3	+3.8	
MEAN	66	58	70	69	66	69	79	72	69
CV %	3.3	2.8	2.4	2.2	2.9	6.3	4.3	5.3	

1. The local control variety was different at various locations.

Table 13. Mean plant height (m) of test hybrids in the West African Sorghum Hybrid Adaptation Trial (WASHAT) at eight locations in West Africa, rainy season, 1989.

Cultivar	Bagauda	Guiring	Tarna	Samanko	Sotuba	Bouake	FarakoBa	Lossa	Mean
ICSH 230	2.12	1.88	1.43	1.98	2.20	1.92	1.92	1.75	1.90
ICSH 232	2.07	1.88	1.37	1.96	2.08	1.68	1.70	1.58	1.79
ICSH 642	2.25	1.98	1.63	2.09	2.23	2.03	1.78	1.89	1.99
ICSH 780	2.12	1.98	1.38	2.03	2.18	2.08	1.78	1.90	1.93
ICSH 89001 NG	2.35	2.00	1.67	2.21	2.38	2.25	1.92	1.98	2.10
ICSH 479	2.05	1.88	1.52	1.97	2.21	1.62	1.77	1.63	1.83
ICSH 88038	2.05	2.01	1.63	2.00	2.22	1.85	1.75	1.73	1.91
ICSH 88039	2.12	1.88	1.67	2.02	2.22	1.95	1.87	1.80	1.94
ICSH 507	2.17	1.87	1.62	2.06	2.24	2.02	1.63	1.79	1.93
ICSH 89002 NG	2.23	2.17	1.70	2.22	2.37	2.02	1.87	1.84	2.05
ICSH 330	2.02	1.59	1.50	1.98	2.13	1.93	1.65	1.67	1.81
ICSH 646	1.73	1.48	1.37	1.86	2.07	1.57	1.63	1.73	1.68
ICSH 88042	2.20	1.74	1.42	1.99	2.17	1.93	1.73	1.77	1.87
ICSH 89003 NG	2.17	1.73	1.58	2.02	2.13	1.98	1.77	1.78	1.90
ICSH 89004 NG	2.08	1.84	1.48	1.94	2.28	1.95	1.68	2.03	1.91
Tx 623A x MR 732 (INRAN Sorghum Hybrid)	2.08	1.89	1.50	2.02	2.24	2.02	1.72	1.77	1.91
Tx 631A x SUCR 36 (INRAN Sorghum Hybrid)	2.18	2.02	1.57	2.22	2.24	2.03	1.77	1.74	1.97
Controls									
ICSH 109	2.13	1.96	1.43	2.04	2.14	1.98	1.72	1.69	1.89
ICSV 111	2.17	2.34	2.33	2.43	2.52	2.12	1.72	1.82	2.18
LOCAL <sup>1</sup>	2.35	2.33	2.41	4.42	1.50	1.98	3.30	2.13	2.55
SE±	+0.091	+0.219	+0.07	+0.077	+0.021	+0.128	+0.105	+0.177	
MEAN	2.13	1.92	1.61	2.17	2.19	1.95	1.83	1.80	1.95
CV %	4.3	11.4	7.64	3.6	1.0	6.6	5.7	9.8	

1. The local control variety was different at various locations.



Annex 1. Mean grain yield ( $t\ ha^{-1}$ ) of early duration varieties of the West African Sorghum Variety Adaptation Trial (WASVAT-Early) in Niger and Sierra Leone.

Varieties	Niger (Lossa)	Sierra Leone (Rokupr)
CS 54	1,38	0,97
CS 61	1,04	1,35
CE 151-382	1,04	1,13
CE 196-7-2-1	1,29	0,43
Nabana Beida	1,67	0,63
Lekwere Bedha	0,75	1,27
ICSV 242 IN	1,58	1,23
ICSV 258 IN	1,44	1,02
ICSV 401 IN	1,25	0,63
ICSV 1079 BF	1,83	1,22
ICSV 1170 BF	1,54	1,22
ICSV 1177 BF	1,15	1,60
ICSV 1172 BF	1,60	1,13
ICSV 1174 BF	1,25	1,40
ICSV 1125 BF	1,35	1,51
ICSV 1175 BF	0,81	0,77
ICSV 1176 BF	1,15	0,67
ICSV 111 IN	1,13	1,17
Controls		
Nagawhite	1,50	1,17
Local	1,48	2,22
SE±	0,28	0,28
Mean	1,31	1,14
CV (%)	36,5	43,0

Annex 2. Mean grain yield (t ha<sup>-1</sup>) of medium duration varieties of the West African Sorghum Variety Adaptation Trial (WASVAT-Medium) in Benin, Cameroon, Ghana-Nyankpala, and Sierra Leone.

Varieties	Benin	Cameroon	Ghana Nyankpala	Sierra Leone
CS 95	0,15	4,04	0,35	1,37
CS 85	0,47	1,63	1,33	0,95
NSV 1	0,64	0,29	0,93	*
SEPON 82	0,99	2,08	1,19	0,70
F2-20	0,52	2,71	1,75	1,88
Takmalit	0,24	0,63	0,41	*
Niobougou	0,20	1,38	0,60	0,87
BF 80-10/6-2-3	0,28	2,04	0,46	0,97
BF 82-3/25-1-1	0,21	1,84	1,14	1,22
BF 82-4/4-1-1	0,59	2,67	1,17	2,02
IS 6928	0,72	2,59	1,10	1,70
IS 23526	0,66	1,42	1,56	1,30
IS 22380	0,72	2,33	0,95	1,00
ICSV 1163 BF	0,48	1,71	1,08	1,20
ICSV 1157 BF	0,29	2,75	1,05	1,27
ICSV 1171 BF	0,82	1,71	1,20	1,62
Blanc de Karimana	1,13	2,00	0,66	*
ICSV 1063 BF	0,30	2,29	1,02	1,23
ICSV 1089 BF	0,45	3,63	1,37	2,23
Local control	0,24	3.04	0,78	2,78
SE±	0,18	0,75	0,19	0,20
Mean	0,50	2,14	1,01	1,43
CV (%)	64,1	60,4	41,9	41,5

Annex 3. Number of days at 50% flowering and plant height (m) of medium variety genotypes in the West African Sorghum Variety Adaptation Trial (WASVAT-Medium) in Benin, rainy season, 1989<sup>1</sup>.

Varieties	50% flowering	Height
CS 95	69,33	110,97
CS 85	83,67	184,53
NSV 1	76,67	259,90
SEPON 82	74,67	109,13
F2-20	74,67	132,53
Takmalit	85,00	185,63
Niobougou	79,00	161,43
BF 80-10/6-2-3	63,67	140,87
BF 82-3/25-1-1	72,67	125,60
BF 82-4/4-1-1	74,00	143,80
IS 6928	71,67	154,93
IS 23526	80,33	176,83
IS 22380	70,33	134,93
ICSV 1163 BF	83,33	179,67
ICSV 1157 BF	67,33	126,80
ICSV 1171 BF	81,67	165,60
Blanc de Karimana	84,33	234,20
ICSV 1063 BF	73,33	141,10
ICSV 1089 BF	84,00	172,77
Local control	61,67	151,47
SE±	2,36	1,73
Mean	75,57	153,69
CV (%)	5,4	1,9

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