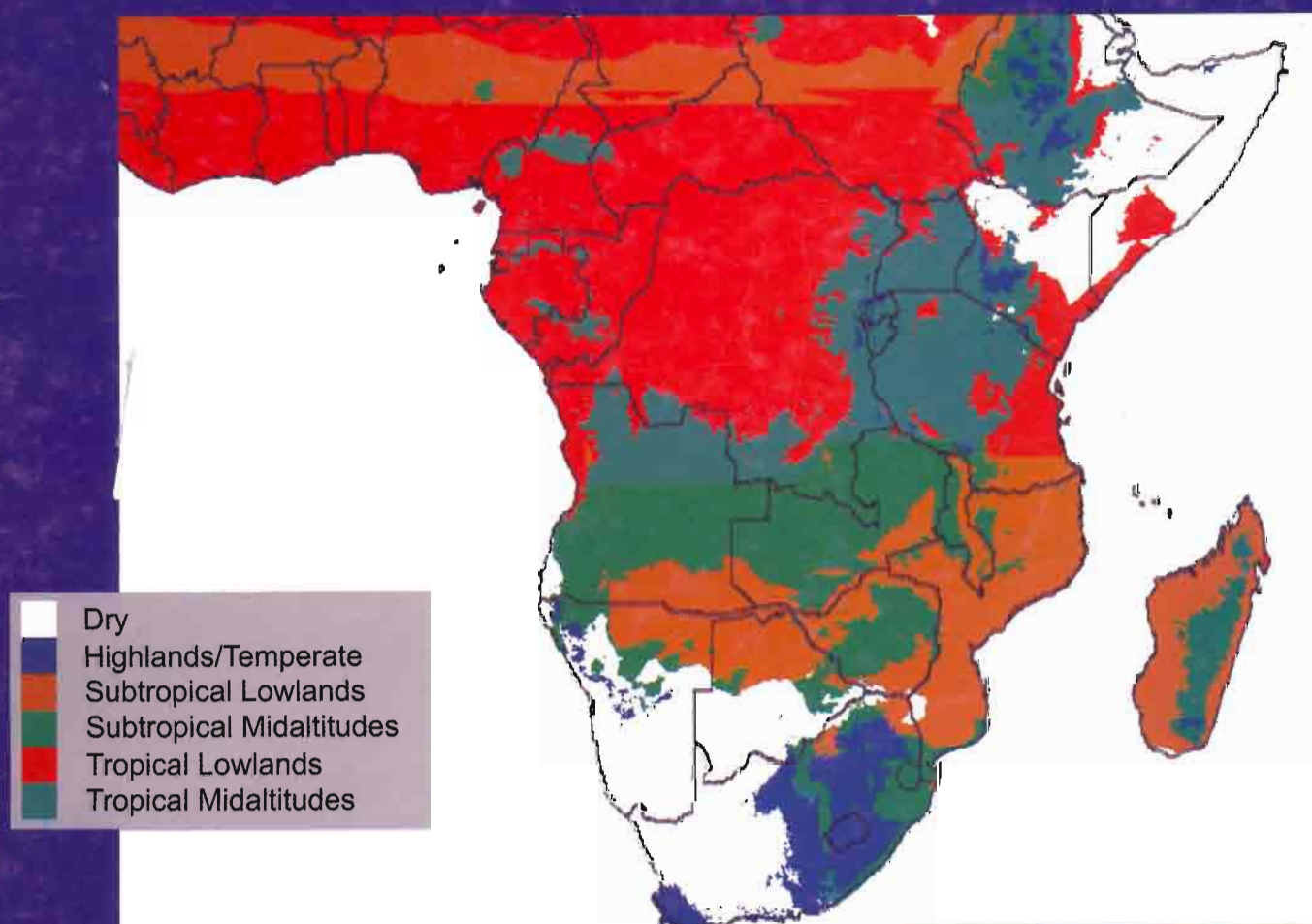




CIMMYT / MWIRNET

Characterization of Elite Maize Germplasm Grown in Eastern and Southern Africa

Results of the 1999 Regional Trials conducted by CIMMYT and the Maize and Wheat Improvement Research Network for SADC (MWIRNET)



CIMMYT

The International Maize and Wheat Improvement Center (CIMMYT) is an internationally funded, non-profit scientific research and training organization. Headquartered in Mexico, the Center works with agricultural research institutions worldwide to improve the productivity and sustainability of maize and wheat systems for resource-poor farmers in developing countries. It is one of 16 similar centers supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR comprises over 50 partner countries, international and regional organizations, and private foundations. It is co-sponsored by the Food and Agriculture Organization (FAO) of the United Nations, the International Bank for Reconstruction and Development (World Bank), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP).

The Maize and Wheat Improvement Research Network for SADC (MWIRNET)

The Maize and Wheat Improvement Research Network for SADC (MWIRNET) is a network of maize and wheat scientists of SADC member states. The Network's objectives are to develop and facilitate the exchange of improved varieties of maize and wheat, and to strengthen the research capabilities of NARS through human resource development and exchange of information. The Network is coordinated by a Steering Committee composed of senior maize and wheat scientists of each SADC member state under the guidance of the Southern African Centre for Cooperation in Agricultural and Natural Resources Research and Training (SACCAR). Activities of the Network are funded by the European Union (EU) and the Swiss Agency for Development and Cooperation (SDC).

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1. Introduction

Maize germplasm

The trials evaluated elite pre-release and released maize germplasm supplied by CIMMYT, National Agricultural Research Programs, and private seed companies from southern and eastern Africa.

CIMMYT-Zimbabwe collected the germplasm, grouped it according to vigor and maturity, and formed six replicated trials:

EPOP99: early to intermediate maturing open-pollinated varieties (OPV's)

ILPOP99: intermediate to late maturing open-pollinated varieties (OPV's)

EIHYB99: early to intermediate maturing hybrids

ILHYB99: intermediate to late maturing hybrids

TZONE99: open-pollinated varieties (OPV's) for the transition zone (1800-2400 masl)

EAIL99: elite and advanced inbred lines

Each trial had an alpha (0,1) lattice design with three replicates. ILHYB99 contained six dwarf maize varieties from the Africa Centre for Fertilizer Development (ACFD). These dwarf varieties were grouped at the beginning or the end of each replicate to prevent shading by the normal tall varieties.

Trial management

The trials were grown by CIMMYT, National Agricultural Research Programs, private seed companies and non-governmental organizations in eastern and southern Africa. Collaborators were encouraged to grow the trials under different types of conditions:

Well-fertilized/rain-fed conditions: trials were grown using optimal site-specific agronomic practices

Managed nitrogen stress: trials were grown in fields that had been depleted of nitrogen by growing unfertilized, non-leguminous crops for several seasons and removing the crop biomass after each season. Nitrogen fertilization to maize trials was designed so that yields under managed N stress averaged 20-35% of the yield of a well-fertilized maize crop at that site.

Managed drought stress: trials were grown during a rain-free period, with irrigation applied at the beginning of the season to establish a good plant stand. Afterwards, irrigation was withheld so that the crop suffered drought stress during flowering and grain-filling, resulting in average yields of about 1-3 t/ha.

Artificial inoculation/infestation of biotic stress factors: trials (mainly EAIL99) were grown under artificial inoculation/infestation of leaf diseases, stem borers, maize grain weevils and *Striga hermonthica*.

A complete list of the sites can be found in Section 5.

Data analysis

In each table, entries are grouped by anthesis date and, except for EAIL99, sorted according to the average rank for yield across all sites. Within each maturity group, best ranking entries are listed at the top.

For presenting grain yields, sites were grouped into the following five environments:

- Lowland tropics, rainfed/well-fertilized
- Midaltitudes in eastern Africa, rainfed/well-fertilized
- Midaltitudes in southern Africa, rainfed/well-fertilized
- Managed and random drought stress
- Managed N stress

This grouping was done based on the location (for making the division among rainfed/well fertilized sites, see Fig.1) and the management of the sites (rainfed/well fertilized, managed drought stress, managed N stress).

Each trial is presented with two summary tables and individual site results.

Summary tables:

The summary tables present grain yields averaged across sites for each of the five environments, and data on agronomic performance such as anthesis date, plant and ear height, ear position, root and stem lodging, husk cover, ear rot, leaf diseases, *Striga* counts, grain weevil and stem borer damage, grain texture and grain moisture.

Within each maturity group, grain yields were color-coded. Within a maturity group, colors that have no letter in common in the legend are different by at least one 'Least Significant Difference' (LSD, $P = 0.05$). LSDs were calculated from the mean square error that was pooled across sites. Note: colors can only be used to compare grain yields within a certain maturity group. For comparing grain yields between maturity groups, use the LSD listed at the bottom of the table.

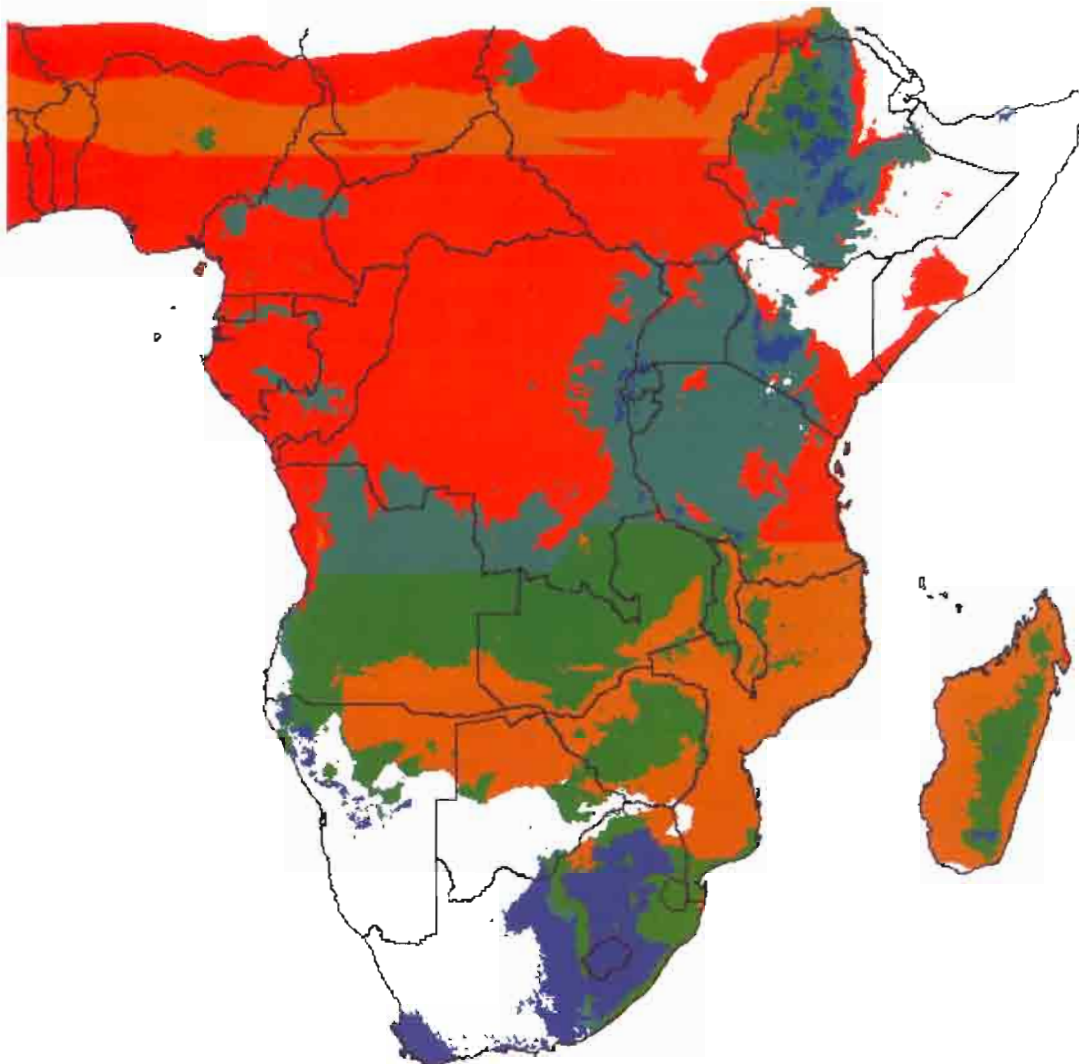
	Color legend	
	Within a maturity group, colors that have no letter in common are different by at least one LSD.	A
	AB	Good
	BC	Average
	CD	Poor
		Very poor

Data on anthesis date, plant and ear height, ear position, leaf diseases, *Striga* infestation, grain weevil and stem borer damage, grain texture and grain moisture were averaged across those sites that provided results with significant differences between entries. If no data are presented for these traits, no trial data demonstrating significant differences for these traits was available. Data on root and stem lodging, husk cover, and ear rot were averaged across all sites. A description of all measurements can be found in Section 4.

Individual site results:

These tables present grain yields for individual sites, grouped by environment. A description of the sites can be found in Section 5.

Fig 1. CIMMYT Maize Mega-Environment classification based on day length, mean temperature, and rainfall.



Megaenvironment	Day length	Mean Temp.	Rainfall
Dry			≤ 200 mm
Tropical Lowlands	$11 \leq d < 12.5$ hrs	≥ 24 °C	> 200 mm
Tropical Midaltitudes	$11 \leq d < 12.5$ hrs	$18^{\circ}\text{C} \leq T < 24^{\circ}\text{C}$	> 200 mm
Subtropical Lowlands	$12.5 \leq d < 13.4$ hrs	$\geq 24^{\circ}\text{C}$	> 200 mm
Subtropical Midaltitudes	$12.5 \leq d < 13.4$ hrs	$18^{\circ}\text{C} \leq T < 24^{\circ}\text{C}$	> 200 mm
Highlands/Temperate	$d \geq 13.4$ hrs	<u>or</u> $T < 18^{\circ}\text{C}$	> 200 mm

How can the results be used ...

.... by National Agricultural Research Programs?

- Request seed of the very best stress-tolerant, responsive OPV's and (triple- and double-cross) hybrids from CIMMYT, other National Programs, and private seed companies, and further test them in the National Maize Evaluation Trials.
- Conduct National Maize Evaluation Trials not only under optimal conditions but also under the most important stresses present in farmers' fields. Consider performance under stress conditions and farmers' preferences when making decisions on release of germplasm.
- Request and use seed of best CIMMYT germplasm (inbred lines, OPV's) in your breeding program.

.... by Private Seed Companies?

- Foster the distribution of cultivars that are not only high yielding under optimal conditions but as well under the most important stresses present in farmers' fields.
- Continue to submit seed of your best germplasm for evaluation in Regional Trials (to CIMMYT) and/or National Maize Evaluation Trials (to National Agricultural Research Programs of individual countries).
- Request and use seed of best CIMMYT germplasm (inbred lines, OPV's) in your breeding program and for commercialization.

.... by seed-distributing agencies?

- Use data from Regional Trials (available from CIMMYT-Zimbabwe) and National Maize Evaluation Trials (available from National Agricultural Research Programs of individual countries) for making decisions on which seed to distribute to farmers.
- Distribute quality seed of the very best stress-tolerant, responsive hybrids and OPV's that are currently available.

Conclusion: Foster the availability and distribution of quality seed of the very best maize cultivars, those that are not only high yielding under optimal conditions but as well under the stresses present in farmers fields.

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99. For individual site results, see pages 18-23.

Entry	Pedigree	Origin	Across		Grain yield				Anth date		
			Rel GY	Rank	Lowlands	Mildalt EA	Mildalt SA	Drought		N stress	
			%	Avg	Stdev	t/ha	t/ha	t/ha	t/ha	d	
OPVs with anthesis date between 54 and 57 days											
5	Z97EWA-F2/Z97EWB-F2	CIMMYT-ZIM	101	12	5	3.33	3.13	4.64	2.81	1.91	55.9
10	[EARLY-MID-1/KATUMANI-SR]#	CIMMYT-ZIM	98	13	6	3.18	3.76	5.00	2.57	1.78	56.9
3	Z97EWA-F2#	CIMMYT-ZIM	94	15	6	3.23	3.38	4.45	2.44	1.67	56.5
4	Z97EWB-F2#	CIMMYT-ZIM	92	15	6	2.97	3.29	4.04	2.51	1.75	54.8
OPVs with anthesis date between 57 and 59 days											
12	ZM421 = SADVE F1	CIMMYT-ZIM	119	5	3	3.71	4.22	5.19	3.15	2.44	58.5
6	ZM303 = [EARLY-MID-2/PL16-SR]#	CIMMYT-ZIM	105	10	5	3.60	3.91	3.15	2.33	2.19	57.7
8	[TEWD-SRDRTOLSYN[INAW5867P30-SR(S2#)]]#	CIMMYT-ZIM	100	12	5	3.38	4.00	4.51	2.56	1.85	57.9
1	ZM301	CIMMYT-ZIM	103	12	5	3.48	3.57	4.40	2.64	1.74	57.5
15	DTP1-W C6 SEL PRECOZ F3	CIMMYT-MEX	104	14	7	3.16	3.63	4.30	2.60	2.13	58.2
11	[VAR/TEMP/HILANDPOP]#	CIMMYT-ZIM	95	14	6	3.10	4.16	5.07	2.26	1.76	58.5
9	[EV7992/POOL16-SR]#S1SEL-F3	CIMMYT-ZIM	95	14	5	3.39	3.83	4.20	2.32	1.77	58.0
18	KATUMANI-ST#	TANZANIA	96	16	6	3.44	3.74	4.27	2.28	1.80	57.7
16	POOL 16 BNSEQ C1 F2	CIMMYT-MEX	88	17	6	3.03	3.18	3.53	2.50	1.69	57.1
7	[DMRESR-W]#(EARLY SEL) #	CIMMYT-ZIM	90	17	5	3.02	3.23	3.82	2.19	1.89	58.7
OPVs with anthesis date between 59 and 62 days											
13	ZM521 = { SADV1 F1	CIMMYT-ZIM	127	3	2	4.23	5.28	8.03	2.91	2.62	61.1
14	{ SADV2 F1	CIMMYT-ZIM	124	5	4	3.96	5.17	6.23	2.74	2.31	59.8
17	MATINDIRI#	MALAWI	95	13	7	3.40	4.33	4.43	2.12	1.97	60.6
2	GRACE (WF-2)#	SOUTH AFRICA	98	13	6	3.54	4.48	4.24	2.42	1.81	59.2
24	LOCAL CHECK 3	various origins	102	14	8	3.06	3.99	4.76	2.40	2.24	59.8
23	LOCAL CHECK 2	various origins	90	15	7	3.19	4.36	5.49	1.84	1.76	59.5
22	LOCAL CHECK 1	various origins	91	16	8	3.09	3.29	4.24	2.26	1.74	59.8
19	KITO-ST#	TANZANIA	88	16	6	3.47	4.45	4.14	1.82	1.81	59.9
OPVs with anthesis date between 63 and 64 days											
21	SYNTHETIC-NUE-SR#	CIMMYT-KEN	103	8	7	3.89	5.34	5.73	1.97	2.01	63.9
20	SYNTHETIC-DR-SR#	CIMMYT-KEN	102	10	7	3.85	5.25	5.30	2.07	1.79	63.3
Mean			100	12	6	3.40	4.04	4.72	2.41	1.91	58.8
LSD (0.05)						0.26	0.68	0.55	0.29	0.30	0.6
Min:			88	3	2	2.83	3.13	3.55	1.82	1.50	54.8
Max			127	17	8	4.23	5.34	6.23	3.15	2.62	63.9



Within a maturity group, colors that have no letter in common are different by at least one LSD.

LSDs were calculated from the mean square error that was pooled across sites.

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Anth date	Plant height	Ear height	Lodg root	Husk cover	Ear rot	GLS	Pucc sorghl	E turclic	DMR	Strige count	Grain weevil	Grain text	Grain moist
	Rel GY	Rank														

% Avg Stdev d cm cm % % % % % % % % % % % %

OPVs with anthesis date between 54 and 57 days

5	Z97EWA-F2/Z97EWA-F2	101	12	5	55.9	176	76	8	10	7	13	1.9	2.3	2.3	40	106	3.0	15.0
10	[EARLY-MID-1/KATUMANI-SR]#	98	13	6	56.9	183	85	8	10	6	12	1.9	1.4	2.3	21	103	3.1	14.4
3	Z97EWA-F2#	94	15	6	56.5	173	77	10	8	11	14	2.1	0.8	2.1	25	139	3.4	15.1
4	Z97EWA-F2#	92	15	6	54.8	172	71	7	10	8	17	2.1	1.7	2.3	29	122	2.6	14.3

OPVs with anthesis date between 57 and 59 days

12	ZM421 = SADVE F1	119	5	3	58.5	179	82	6	9	8	16	1.3	2.0	2.2	31	154	3.0	15.4
6	ZM303 = [EARLY-MID-2/PL16-SR]#	105	10	5	57.7	179	81	8	10	10	16	1.5	1.6	2.5	37	96	3.6	15.3
8	[TEWD-SRDRTOLSYN/(NAW5867/P30-SR(S2#))]##	100	12	5	57.9	175	76	7	9	5	13	1.9	2.7	2.3	32	104	3.3	14.5
1	ZM301	103	12	5	57.5	179	76	9	11	7	15	1.9	2.5	2.3	34	130	3.3	15.5
15	DTP1-W C6 SEL PRECOZ F3	104	14	7	58.2	176	75	9	9	12	20	1.9	1.9	2.1	33	100	2.9	15.0
11	[VAR/TEMP-HILANDPOP]##	95	14	6	58.5	188	83	10	11	9	17	1.7	1.3	2.5	31	120	3.5	15.3
9	[EV7992/POOL-16-SR]#bS1SEL-F3	95	14	5	58.0	177	76	9	12	11	18	2.0	1.9	2.4	34	120	3.5	14.7
18	KATUMANI-ST#	96	16	6	57.7	192	89	8	10	6	14	2.2	2.1	2.3	34	127	2.7	16.1
16	POOL-16 BNSEQ C1 F2	88	17	6	57.1	165	69	6	9	8	17	3.1	2.2	2.2	36	124	3.6	14.8
7	[DMRESR-W]#b(EARLY SEL)#	90	17	5	58.7	177	82	9	9	6	8	2.3	1.8	2.3	34	100	3.1	14.8

OPVs with anthesis date between 59 and 62 days

13	ZM521 = { SADV11 F1	127	3	2	61.1	194	90	5	6	9	12	1.4	1.8	1.9	31	88	3.1	15.6
14	{ SADV12 F1	124	5	4	59.8	189	85	6	9	6	11	1.3	1.7	2.1	40	113	3.1	16.2
17	MATINDIRI#	95	13	7	60.6	177	80	8	8	10	12	1.5	1.8	2.4	31	60	1.7	15.4
2	GRACE (EWF-2)#	98	13	6	59.2	184	86	8	9	5	17	1.9	2.7	2.3	33	32	2.8	16.4
24	LOCAL CHECK 3	102	14	8	59.8	187	90	7	8	9	12	2.9	1.9	2.3	32	76	3.5	15.0
23	LOCAL CHECK 2	90	15	7	59.5	184	83	7	9	9	17	1.4	1.6	2.3	30	30	3.6	16.0
22	LOCAL CHECK 1	91	16	8	59.8	184	85	6	8	5	12	2.8	1.2	2.1	11	242	2.0	15.1
19	KITO-ST#	88	16	6	59.9	192	90	6	9	7	15	1.9	2.3	2.7	29	112	2.9	16.1

OPVs with anthesis date between 63 and 64 days

21	SYNTHETIC-NUE-SR#	103	8	7	63.9	182	91	7	7	7	8	1.1	2.6	1.7	36	116	2.4	17.5
20	SYNTHETIC-DR-SR#	102	10	7	63.3	188	88	6	7	6	12	1.5	2.6	2.1	32	123	2.7	17.1

Mean		100	12	6	58.8	181	82	8	8	8	14	1.9	1.9	2.3	31	117	3.0	15.4	
LSD (0.05)					0.6	5	4	2	2	4	5	0.5	0.9	0.3	1.2	12	65	0.3	0.6
Min		88	3	2	54.8	165	69	5	6	5	8	1.1	0.8	1.7	10	60	1.7	14.3	
Max		127	17	8	63.9	194	91	10	12	12	20	3.1	2.7	2.7	40	242	3.6	17.5	

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99. For individual site results, see pages 24-27.

Entry Pedigree	Origin	Across			Grain yield				Anth date	
		Rel GY	Rank	Stdev	Lowlands	Midalt EA	Midalt SA	Drought		N stress
		%	Avg	Stdev	t/ha	t/ha	t/ha	t/ha	t/ha	d
OPVs with anthesis date between 67 and 70 days										
13 ZM621 = SADVL F1	CIMMYT-ZIM	125	4	4	3.35	6.45	7.95	2.59	2.72	69.6
11 LATAC1F1/LATBC1 F1	CIMMYT-ZIM	112	7	4	2.93	6.35	6.74	2.36	2.37	68.8
14 MASIKA-#	MALAWI	113	8	5	3.23	5.96	6.11	2.36	2.62	68.4
12 DRACOSYNF1/DRBC0SYN F1	CIMMYT-ZIM	113	8	5	3.25	6.05	6.48	2.35	2.34	67.4
1 Z97SYNGLS(A)-F2-#	CIMMYT-ZIM	104	10	6	3.28	5.53	6.44	2.08	2.33	69.5
6 [TUXP.SEQC6]C1 F2	CIMMYT-ZIM	105	11	6	2.88	5.57	6.60	2.16	2.32	69.9
7 [TSEQZIM]C2 F2	CIMMYT-ZIM	103	11	6	2.71	5.69	6.58	2.05	2.13	69.1
19 CHITIBU -#	MALAWI	99	12	6	2.92	5.68	6.21	2.08	2.03	68.3
10 INTAC1F1/INTBC1 F1	CIMMYT-ZIM	100	13	6	2.71	5.87	5.91	2.19	2.01	68.2
8 [ZM601DEN]C3 F2	CIMMYT-ZIM	100	13	6	2.42	5.55	5.86	2.10	2.18	69.1
16 KAKHOMERA-#	MALAWI	97	14	7	2.58	5.08	5.31	2.09	2.16	69.1
18 SUNDWE-#	MALAWI	95	15	6	2.66	5.31	6.01	2.00	1.89	67.6
4 [MID.ALT.QPM]C2 F2-#	CIMMYT-ZIM	94	15	6	2.47	4.51	5.99	2.00	2.22	68.7
24 LOCAL CHECK 2	various origins	91	16	7	2.71	5.22	5.27	1.70	2.00	69.4
21 TMV-1-#	TANZANIA	91	17	4	2.55	5.01	5.47	1.96	1.84	68.7
5 [WHITE.QPM]C2 F2-#	CIMMYT-ZIM	87	17	6	2.24	4.86	5.09	1.82	1.99	67.8
15 MCHOSANJALA-#	MALAWI	80	20	4	2.34	4.43	5.01	1.74	1.68	69.9
OPVs with anthesis date between 70 and 73 days										
2 Z97SYNGLS(B)-F2-#	CIMMYT-ZIM	108	9	7	3.14	5.63	7.12	2.16	2.09	70.9
22 TASEQ-#	CIMMYT-KEN	107	10	7	2.58	6.23	6.22	2.09	2.53	72.6
9 [SUWAN1-SR/COMPE1]C1-#	CIMMYT-ZIM	105	10	7	2.65	5.97	7.28	2.32	1.86	70.4
3 AC969A-SR(Best FS)] F2	CIMMYT-ZIM	98	13	8	2.57	6.09	6.50	1.85	2.20	72.6
23 LOCAL CHECK 1	various origins	94	15	6	2.33	5.34	5.60	1.85	2.14	70.3
17 KAFUMBA-#	MALAWI	91	16	5	2.75	5.07	4.93	1.90	2.13	70.6
20 STAHA-#	TANZANIA	89	16	5	2.42	5.20	5.98	1.73	2.00	72.4
Mean		100	12	6	2.74	5.53	6.11	2.05	2.16	69.5
LSD (0.05)					0.42	0.69	0.60	0.28	0.38	0.7
Min		80	4	4	2.24	4.43	4.93	1.70	1.68	67.4
Max		125	20	8	3.35	6.45	7.95	2.59	2.72	72.6



Within a maturity group, colors that have no letter in common are different by at least one LSD.

LSDs were calculated from the mean square error that was pooled across sites.

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Anth date	Plant height	Ear height	Ear posit	Lodging		Husk cover	Ear rot	GLS	Pucc sorghl	E turcic	Grain weevil	Grain text	Grain moist
	Rel.GY	Rank					root	stem								
	%	Avg	d	cm	cm	posi	%	%	%	%	1-5	1-5	1-5	F1	1-5	%
OPVs with anthesis date between 67 and 70 days																
13 ZM621 = SADVL F1	125	4	69.6	206	103	52	5	5	8	11	1.5	1.7	1.8	56	4.1	15.8
11 LATA1F1/LATBC1 F1	112	7	68.8	211	100	50	7	5	8	12	2.2	1.8	1.5	65	3.6	14.7
14 MASIKA #	113	8	68.4	201	100	51	5	6	6	13	2.0	1.4	1.8	62	3.6	14.2
12 DRAC0SYNF1/DRBC0SYN F1	113	8	67.4	208	98	47	7	5	9	15	3.1	1.8	1.5	93	4.7	15.1
1 Z97SYNGLS(A)-F2 #	104	10	69.5	200	100	47	3	6	9	11	2.1	1.6	1.5	61	3.9	15.8
6 [TUXP:SEQC6]C1 F2	105	11	69.9	200	102	54	7	7	8	11	1.6	1.6	1.7	108	3.8	14.8
7 [TSEQZIM]C2 F2	103	11	69.1	202	95	47	4	4	11	13	1.8	1.6	1.7	77	4.1	15.3
19 CHITIBU #	99	12	68.3	206	102	50	6	7	7	10	2.2	1.7	1.7	52	2.8	14.4
10 INTAC1F1/INTBC1 F1	100	13	68.2	202	95	50	5	6	8	14	2.3	1.7	1.5	107	4.0	14.4
8 [ZM601DEN]C3 F2	100	13	69.1	201	100	53	5	7	6	12	2.2	1.6	2.7	93	3.4	15.7
16 KAKHOMERA #	97	14	69.1	206	100	48	5	6	6	9	1.7	1.6	1.8	85	3.3	14.9
18 SUNDWE #	95	15	67.6	198	96	46	9	7	6	14	1.7	1.8	1.7	73	3.7	14.8
4 [MID ALT.QPM]C2 F2 #	94	15	68.7	200	94	46	7	4	8	9	1.8	1.8	1.8	77	2.8	14.8
24 LOCAL CHECK 2	91	16	69.4	206	104	63	8	6	8	9	1.6	1.9	1.7	68	3.6	15.4
21 TMV-1 #	91	17	68.7	206	107	52	6	7	6	9	2.5	2.2	1.7	75	1.8	14.6
5 [WHITE QPM]C2 F2 #	87	17	67.8	196	92	46	5	6	9	15	2.3	1.5	2.0	126	2.7	14.7
15 MCHOSANJALA #	80	20	69.9	198	95	52	4	5	16	12	3.1	1.6	1.7	98	2.6	13.5
OPVs with anthesis date between 70 and 73 days																
2 Z97SYNGLS(B)-F2 #	108	9	70.9	203	100	52	4	5	10	8	1.8	1.8	1.7	72	3.3	16.4
22 TASEQ #	107	10	72.6	208	105	48	4	5	9	9	1.6	2.2	3.3	69	3.3	16.2
9 [SUWAN1-SR/COMPE1]C1 #	105	10	70.4	219	114	53	6	9	11	17	2.0	1.8	2.0	94	3.9	15.8
3 AC969A-SR(Best FS)] F2	98	13	72.6	209	108	49	6	5	8	9	1.4	1.8	1.7	59	3.3	16.6
23 LOCAL CHECK 1	94	15	70.3	200	103	50	10	5	8	11	1.8	2.3	2.0	180	3.6	16.0
17 KAFUMBA #	91	16	70.6	193	103	50	6	5	9	10	2.3	2.0	2.0	114	3.5	15.8
20 STAHA #	89	16	72.4	220	125	55	7	5	9	10	2.0	1.7	2.2	75	3.3	16.3
Mean	100	12	69.5	204	102	51	6	6	8	11	2.0	1.8	1.9	85	3.4	15.3
LSD (0.05)			0.7	7	7	1	3	2	5	3	0.5	0.4	0.6	47	0.4	0.8
Min	80	4	67.4	193	92	46	3	4	6	8	1.4	1.4	1.5	52	1.8	13.5
Max	125	20	72.6	220	125	63	10	9	16	17	3.1	2.3	3.3	180	4.7	16.6

EIHYB99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99. For individual site results, see pages 28-32. For the color legend, see pages 6, 8, 12 or 14.

Entry Pedigree	Origin	Across			Grain yield					Anth data
		Rel GY	Rank		Lowlands	Midalt EA	Midalt SA	Drought	N stress	
			%	Avg						
Hybrids with anthesis date between 61 and 65 days										
30 953WH237	DR&SS	100	25	11	3.68	6.49	5.22	2.62	2.08	61.7
5 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWB	CIMMYT	94	31	13	2.91	6.41	5.71	2.17	2.45	64.9
8 CML205/Z97EWB	CIMMYT	90	33	10	3.58	5.79	5.76	2.30	1.78	64.1
9 CML205/ZM301	CIMMYT	90	33	11	4.05	6.55	5.97	2.30	1.47	64.9
43 SC401	SEED-CO	82	36	12	4.46	6.38	3.46	2.23	1.79	63.7
Hybrids with anthesis date between 65 and 68 days										
4 [COMPE2/P43-SR/COMPE2] FS#-20-S7/CML390	CIMMYT	120	13	11	5.24	8.52	7.61	2.52	2.98	67.1
31 ZS255	DR&SS	122	16	13	5.10	8.41	5.61	2.98	3.18	65.7
12 G16BNSEQC0F118-1-1-B-B/CML202	CIMMYT	118	16	11	4.62	6.63	6.72	2.91	3.00	66.5
49 SC515	SEED-CO	105	20	13	4.66	8.19	6.52	2.54	2.25	66.3
13 G16SeqC1F47-2-1-2-1-B-B/CML202	CIMMYT	113	20	13	4.67	6.80	5.52	2.80	3.31	66.8
44 SC403	SEED-CO	111	21	15	5.18	7.76	5.00	2.84	2.95	65.3
46 SC407	SEED-CO	105	22	14	4.11	7.80	5.68	2.50	2.47	66.2
6 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWA	CIMMYT	102	23	13	3.62	7.42	5.87	2.62	2.12	65.2
45 SC405	SEED-CO	102	23	12	3.90	7.55	5.16	2.63	2.19	65.2
22 G16BNSEQC0F226-2-3-B-B-B/CML202	CIMMYT	107	23	14	3.30	6.16	6.36	2.79	2.41	67.6
36 PAN 6321	PANNAR	102	24	12	4.40	7.67	5.50	2.63	2.08	66.8
47 SC501	SEED-CO	95	26	13	4.46	7.49	4.70	2.43	2.31	67.7
1 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-8-S7/CML205	CIMMYT	100	28	11	4.61	6.80	5.36	2.64	2.03	67.9
37 PAN 6363	PANNAR	95	29	15	3.98	7.12	4.77	2.77	1.99	67.6
32 983WH102	DR&SS	93	30	12	3.39	8.11	5.44	2.22	1.90	67.0
10 CML205/Z97EWA	CIMMYT	94	31	11	3.68	7.34	5.24	2.03	1.86	65.2
40 CG4141	CARGILL	89	32	16	3.79	6.40	5.81	2.63	1.70	66.1
42 R201	SEED-CO	85	34	16	4.22	7.12	3.80	2.34	1.72	67.6
Hybrids with anthesis date between 68 and 71 days										
2 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-8-S7/CML390	CIMMYT	114	16	11	5.76	7.87	6.76	2.85	2.24	70.3
14 [COMPE2/P43-SR/COMPE2] FS#-20-1-1-B-1-B-B/CML202	CIMMYT	113	16	10	4.92	7.85	7.12	2.75	2.25	68.9
16 SPLC7F182-1-2-2-B-B-B/CML202	CIMMYT	111	19	15	5.03	8.44	6.47	2.76	2.48	70.5
48 SC513	SEED-CO	112	19	11	4.61	7.05	6.40	2.82	2.67	68.5
20 INTA-191-2-1-2-B-B-B/CML202	CIMMYT	107	20	13	4.37	7.93	7.51	2.35	2.27	70.2
21 LATA-26-1-1-2-1-B-B/CML202	CIMMYT	108	21	17	5.33	6.88	7.21	2.37	2.61	69.9
11 [[K64R/PL16-SR]-39-1][K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	CIMMYT	105	22	11	4.03	6.21	6.05	2.70	2.64	68.3
23 G16SeqC1F47-2-1-2-1-B-B-B/CML206	CIMMYT	109	24	12	4.29	6.28	5.80	2.47	3.14	69.3
27 INTB-91-1-2-2-1-B-B/CML206	CIMMYT	103	24	12	4.45	6.74	5.58	2.66	2.51	69.0
39 PAN 6561	PANNAR	97	25	15	4.23	7.35	6.22	2.36	1.97	68.5
13 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-8-1-1-B-1-B/CML202	CIMMYT	102	26	15	5.49	6.81	5.29	2.59	2.45	70.3
24 DTP1WC6F181-1-#-3-1-1-B-B-B/CML206	CIMMYT	92	29	11	4.34	7.36	5.60	2.05	2.25	70.0
35 PAN 6235	PANNAR	93	29	16	5.26	7.16	6.82	2.64	1.30	68.6
50 LOCAL CHECK	various origins	93	30	14	3.69	7.12	5.08	2.19	2.35	69.2
41 CG4585	CARGILL	88	32	13	4.60	6.21	4.90	2.30	1.85	68.8
25 [[K64R/P30-SR]-82-2][K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	CIMMYT	87	35	11	3.50	4.55	5.49	2.12	1.97	68.2
33 PAN 473	PANNAR	85	35	9	3.48	7.13	5.41	2.22	1.33	69.4
34 PAN 6043	PANNAR	83	36	13	3.51	7.03	4.28	2.24	1.18	69.4
38 PAN 6549	PANNAR	75	41	13	1.02	6.09	4.83	1.94	1.13	69.6
Hybrids with anthesis date between 71 and 73 days										
17 TS6C1F238-1-3-3-1-2-#-B-B-B/CML202	CIMMYT	117	15	15	6.32	8.68	7.08	2.39	3.21	72.1
15 IKENEB149SR-68-2-88B-6-BB-B-B-B/CML202	CIMMYT	113	17	14	5.15	7.49	6.76	2.67	2.82	71.5
19 [EV7992#]/EV6449-SR]C1F2-334-1[OSU8]-10-7(1)-X-X-2-B-B-1-B/CML202	CIMMYT	107	19	13	4.62	9.24	6.82	2.51	2.44	72.3
3 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-8-S7/CML395	CIMMYT	103	23	14	4.50	7.62	6.47	2.51	2.23	72.3
26 TS6C1F238-1-3-3-1-2-#-B-B-B/CML206	CIMMYT	101	24	15	4.80	8.11	7.02	2.11	2.22	73.0
7 [NAW 5867/P49-SR(S2#)]/[NAW 5867] FS#-48-S7/CML216	CIMMYT	99	25	18	3.53	6.36	6.15	1.81	2.04	73.0
28 ZM605 C2F1-17-1-B-1-B/CML206	CIMMYT	89	31	17	4.14	6.45	6.24	2.04	1.77	72.1
29 [[TUXPSEQC1F2/P49-SR]-F2-103-2-2-3-B/CML206	CIMMYT	80	37	12	3.60	6.84	6.30	1.82	1.78	71.3
Mean		100	25	13	4.29	7.15	5.78	2.47	2.22	68.2
LSD (0.05)					1.18	1.21	0.84	0.47	0.73	0.8
Min		76	19	9	2.91	4.55	3.48	1.81	1.13	61.7
Max		122	41	18	5.76	8.68	8.15	2.98	3.31	73.0

EIH99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry / Pedigree	Across			Anth date	Plant height	Ear height	Ear posil	Lodging		Ear rot	GLS	Pucc sorgh	E turcic	Grain text	Grain moist
	Rel GY	Rank						root	stem						
	%	Avg	Stdev					%	%						
Hybrids with anthesis date between 61 and 65 days															
30 953WH237	100	25	11	61.7	194	80	43	2	7	13	2.0	1.7	2.3	3.5	13.5
5 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWB	94	31	13	64.9	205	91	45	1	6	7	2.7	2.2	2.3	3.0	12.5
8 CML205/Z97EWB	90	33	10	64.1	193	85	46	2	8	9	2.4	2.0	2.4	2.5	13.4
9 CML205/ZM301	90	33	11	64.9	188	91	47	1	9	9	1.9	2.1	2.1	3.0	12.5
43 SC401	82	36	12	63.7	188	79	44	4	9	10	3.7	1.8	2.4	3.8	12.0
Hybrids with anthesis date between 65 and 68 days															
4 [COMPE2/P43-SR/COMPE2] FS#-20-S7/CML390	120	13	11	67.1	218	103	48	3	4	2	2.0	1.7	2.1	2.3	12.6
31 ZS255	122	16	13	65.7	203	91	46	1	2	15	2.3	1.4	2.1	3.7	16.3
12 G16BNSEQOCF118-1-1-B-B/CML202	118	16	11	66.6	202	89	46	1	8	1	2.5	1.9	1.9	3.0	14.1
49 SC515	105	20	13	66.3	210	105	51	3	3	6	1.4	2.5	1.8	3.3	14.8
13 G16SeqC1F47-2-1-2-1-B-B-B/CML202	113	20	13	66.8	181	82	46	0	6	2	1.9	1.8	1.8	2.4	13.1
44 SC403	111	21	15	65.3	209	94	44	1	4	4	2.8	2.0	2.3	2.8	12.6
46 SC407	105	22	14	66.2	216	94	45	1	6	5	2.3	2.0	2.0	3.0	14.8
6 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWA	102	23	13	65.2	204	100	48	2	7	8	2.5	1.7	2.3	3.7	12.3
45 SC405	102	23	12	65.2	196	85	45	3	8	8	1.9	2.1	2.0	3.3	14.8
22 G16BNSEQOCF228-2-3-B-B-B/CML202	107	23	14	67.6	208	96	49	1	9	4	2.3	1.9	1.8	2.8	15.0
36 PAN 6321	102	24	12	66.8	203	94	49	3	8	14	2.4	1.4	2.4	3.9	12.6
47 SC501	95	26	13	67.7	226	122	53	1	13	18	3.0	2.0	2.3	4.1	13.4
1 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-B-S7/CML205	100	26	11	67.9	200	99	49	2	5	5	2.3	1.6	2.1	3.0	13.6
37 PAN 6363	95	29	15	67.6	190	94	51	2	7	11	2.8	1.6	2.2	4.0	12.8
32 983WH102	93	30	12	67.0	209	100	47	2	7	9	2.4	1.7	2.1	3.4	14.7
10 CML205/Z97EWA	94	31	11	65.2	192	85	49	3	5	8	2.4	1.8	2.3	2.9	12.3
40 CG4141	89	32	16	66.1	208	87	49	3	10	17	3.5	2.1	2.6	4.1	11.9
42 R201	85	34	16	67.6	203	106	52	2	10	25	3.5	1.7	2.4	4.0	14.1
Hybrids with anthesis date between 68 and 71 days															
2 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-B-S7/CML390	114	16	11	70.3	209	103	51	2	8	2	1.8	1.7	2.0	1.9	14.3
14 [COMPE2/P43-SR/COMPE2] FS#-20-7-1-B-1-B-B/CML202	113	16	10	68.9	213	108	49	1	7	4	1.5	1.7	1.9	3.2	13.3
16 SPLC7F182-1-2-2-B-B-B/CML202	111	19	15	70.5	214	113	52	0	9	1	2.7	1.3	2.0	2.4	13.9
48 SC313	112	19	11	68.5	216	107	51	3	6	9	1.3	1.9	2.0	3.4	16.1
20 WTA-191-2-1-2-B-B-B/CML202	107	20	13	70.2	207	102	49	2	1	3	1.2	2.2	1.9	2.6	14.9
21 LATA-26-1-1-2-1-B-B/CML202	108	21	17	69.9	207	105	50	2	7	2	1.6	1.4	1.9	2.3	16.4
11 [[K64R/PL16-SR]-39-1][K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	105	22	11	68.3	197	100	52	1	6	2	2.2	1.9	2.2	2.3	14.1
23 G16SeqC1F47-2-1-2-1-B-B-B/CML206	109	24	12	69.3	176	87	50	2	4	1	2.4	1.4	2.4	2.4	14.7
27 WTB-91-1-2-2-1-B-B/CML206	103	24	12	69.0	197	85	43	2	2	4	2.2	1.4	2.0	2.4	13.8
39 PAN 6561*	97	25	15	68.5	177	88	50	2	5	14	2.2	1.7	2.3	4.1	15.4
18 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-B-1-1-B-1-B/CML202	102	26	15	70.3	203	99	50	3	11	2	2.7	1.7	2.0	2.6	15.8
24 DTP1WC6F181-1-4-3-1-1-B-B-B/CML206	92	29	11	70.0	194	94	50	1	4	2	2.4	1.6	2.4	2.2	12.9
35 PAN 6235	93	29	16	68.6	191	100	53	3	5	17	2.5	1.7	2.4	4.1	13.5
50 LOCAL CHECK	93	30	14	69.2	212	110	52	4	8	10	2.7	1.4	2.1	3.2	14.6
41 CG4585	88	32	13	68.8	200	101	49	2	8	20	3.3	2.2	2.1	3.9	14.4
25 [[K64R/P30-SR]-82-2][K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	87	35	11	68.2	201	85	44	1	7	3	2.8	1.3	2.1	3.0	13.2
33 PAN 473	85	35	9	69.4	188	91	50	2	8	12	2.7	1.6	2.4	4.0	14.1
34 PAN 6043	83	36	13	69.4	191	93	51	3	7	13	2.9	1.8	2.4	3.8	15.4
36 PAN 6548	75	41	13	69.8	207	103	51	4	5	13	2.5	1.4	2.4	3.5	15.0
Hybrids with anthesis date between 71 and 73 days															
17 TS6CF238-1-3-3-1-2-#-B-B-B/CML202	117	15	15	72.1	211	101	47	1	5	2	2.4	1.6	2.1	2.9	16.1
15 IKENE8140SR-48-2-88B-8-8B-B-B/CML202	113	17	14	71.5	213	98	47	3	5	2	2.0	1.6	2.2	2.6	16.0
19 [EVT902#(EV8449-SR)C1F2-324-1(OSUB)](10-77)-X-X-X-2-B-B-1-B/CML202	107	19	13	72.3	207	101	50	1	6	2	1.9	2.3	1.9	3.0	17.0
3 [[NAW 5867/P30-SR]-111-2][NAW 5867/P30-SR]-25-1]-B-S7/CML395	103	23	14	72.3	202	103	50	1	4	5	2.1	1.6	2.0	3.8	18.3
26 TS6CF238-1-3-3-1-2-#-B-B-B/CML206	101	24	15	73.0	202	100	47	0	3	3	2.7	1.4	2.0	2.7	15.3
7 [NAW 5867/P49-SR](S2#)[NAW 5867] FS#-48-S7/CML216	99	25	18	73.0	218	118	57	3	5	3	1.8	1.8	2.1	2.3	14.9
28 ZM625 (Z2F)-17-1-6-1-B/CML206	89	31	17	72.1	198	90	46	2	4	7	1.6	1.4	2.1	2.3	14.7
29 [ITU4PSEQ]C1F2/P49-SR]2-103-2-2-3-B/CML306	80	37	12	71.3	193	81	46	2	4	10	2.0	1.9	2.2	2.5	15.9
Mean	100	25	13	68.2	202	97	49	2	6	6	2.3	1.7	2.1	3.1	14.3
LSD (0.05)				0.8	9	8	4	3	3	8	0.6	0.8	0.3	0.3	1.8
Min	75	33	9	61.7	176	79	43	0	1	1	1.2	1.3	1.8	1.9	11.9
Max	122	41	18	73.0	226	122	57	4	13	25	3.7	2.5	2.6	4.1	18.3

ILHYB99: Results of intermediate and late maturing hybrids from CIMMYT, CARGILL, DR&SS, Malawi, PANNAR and SEED-CO across eastern and southern Africa, 1998/99. For individual site results, see pages 33-36.

Entry Pedigree	Origin	Across			Grain yield					Anth date
		Ref GY		Rank	Lowlands	Midalt EA	Midalt SA	Drought	N stress	
		%	Avg	Stdev	t/ha	t/ha	t/ha	t/ha	t/ha	
Hybrids with anthesis date between 68 and 71 days										
24 ITUXPSEQJCF2P49-SRIF2-45-5-1-2-B/CML202	CIMMYT	112	25	18	5.24	7.83	7.57	2.89	3.14	70.3
25 ITUXPSEQJCF2P49-SRIF2-45-5-1-2-B/CML202	CIMMYT	105	26	20	5.40	8.23	8.98	2.77	2.83	70.4
47 PAN6573	PANNAR	110	27	19	5.05	8.88	7.12	3.16	2.87	70.6
51 C8016	CARGILL	113	28	17	6.22	7.01	6.10	3.25	3.55	69.2
50 C8001	CARGILL	107	34	20	5.78	8.24	8.87	3.13	3.24	68.1
56 SC627	SEED-CO	100	34	19	4.98	9.72	8.42	2.79	1.94	70.4
52 C8037	CARGILL	100	36	23	6.23	7.88	8.38	3.05	2.48	69.0
49 PAN67	PANNAR	95	39	19	4.83	9.87	9.89	2.82	1.88	70.5
38 INBRED A/CML202	MALAWI	87	39	15	5.37	8.98	8.34	3.85	2.38	70.2
55 SC621	SEED-CO	86	40	15	5.21	8.68	6.27	3.85	2.53	70.1
46 PAN6479	PANNAR	94	41	19	5.00	8.64	6.09	2.63	2.11	70.2
40 973WH29	DR&SS	91	41	19	4.78	7.13	9.53	2.36	3.88	70.9
42 PAN6193	PANNAR	89	45	19	5.02	5.89	8.12	2.79	2.16	68.5
Hybrids with anthesis date between 71 and 74 days										
65 M37W/ZM607#F37#r-2-3#r-2-XJ-8-2-X-1-BBB/P43C9-1-1-1-1-BBB	CIMMYT	123	16	16	5.92	9.46	7.75	3.23	3.57	72.7
13 CML202/CML204/CML312	CIMMYT	121	19	18	6.62	10.79	7.29	2.68	4.08	71.8
7 CML202/CML395/CML312	CIMMYT	116	20	21	5.50	11.52	7.88	2.31	3.49	71.8
10 CML202/CML216/CML312	CIMMYT	112	20	19	6.39	11.81	7.49	1.85	3.57	72.0
53 C8027	CARGILL	114	22	15	5.80	9.14	7.14	2.67	3.88	73.7
19 M37W/ZM607#F37#r-2-3#r-2-XJ-8-2-X-1-BBB/CML202	CIMMYT	113	25	15	5.71	9.10	6.65	3.08	3.17	71.0
54 C8040	CARGILL	116	27	20	5.71	7.39	6.58	3.14	3.98	sterile
4 CML202/CML216/CML312/CML206	CIMMYT	108	27	12	5.71	9.39	6.72	2.69	3.07	72.3
18 RS19S2#C80-1-2-BBB/CML202	CIMMYT	111	27	14	3.99	8.87	6.47	2.89	3.15	72.4
49 PAN6587	PANNAR	110	27	16	5.23	9.36	6.81	3.08	2.63	71.4
22 JAC834#KENNE(1)8149SR/PL9AJCF1F1-500-4-X-1-1-BB-1-B/CML202	CIMMYT	106	28	13	5.72	9.22	6.65	2.73	2.83	71.0
44 PAN6243	PANNAR	109	28	15	5.96	9.06	6.87	2.89	2.82	71.4
9 CML204/CML216/CML312	CIMMYT	102	29	18	5.29	10.30	7.06	1.89	3.81	72.1
30 DRB-F2-180-1-1-B/CML206	CIMMYT	107	29	18	5.45	9.12	6.48	2.89	2.82	72.0
5 CML314/CML216/CML312/CML206	CIMMYT	102	29	16	6.60	8.79	6.17	1.85	3.88	72.6
17 CML216#BMR 8TT(W)F2-14-S8	CIMMYT	108	30	17	6.26	9.42	6.29	2.67	3.17	72.1
21 SN5YF2I3TUX-A-90-28-1-3-1-BSR-BB/CML202	CIMMYT	103	30	18	5.42	9.32	7.40	2.30	2.33	72.4
6 CML202/CML395/CML390	CIMMYT	103	30	14	5.41	10.29	8.51	2.32	3.00	72.0
1 CML202/CML204/CML312/CML206	CIMMYT	104	30	15	5.23	10.22	6.34	2.65	2.83	73.4
3 CML202/CML395/CML312/CML206	CIMMYT	99	31	13	5.13	10.29	8.75	1.85	3.14	72.3
2 CML202/CML395/CML390/CML206	CIMMYT	99	32	18	5.93	9.82	8.28	3.88	3.46	72.9
31 SCIZM605#6-19-2-XJ-1-2-X-1-1-BBB/CML206	CIMMYT	101	32	18	5.90	7.84	6.27	2.39	3.06	72.5
14 CML390/CML206/CML395	CIMMYT	100	33	14	6.12	9.88	6.17	2.38	2.49	73.7
23 LPSC4F273-2-2-3-BBB/CML202	CIMMYT	102	33	15	5.28	8.68	6.25	2.66	2.99	73.1
32 ZSR9234BULK-2-2-X-X-X-1-BBB/CML206	CIMMYT	97	33	18	5.78	10.58	6.39	2.15	2.38	73.2
45 PAN6335	PANNAR	102	33	19	5.86	7.74	6.43	2.55	2.64	71.5
20 LATA-F2-138-1-3-1-BB/CML202	CIMMYT	97	34	18	5.79	7.80	6.52	2.43	3.17	71.9
57 SC709	SEED-CO	92	35	22	6.25	9.83	7.16	3.88	2.18	73.8
36 DRB-F2-180-2-1-BB/CML206	CIMMYT	98	36	15	5.14	7.63	6.98	2.39	2.57	73.3
37 ITUXPSEQJCF2P49-SRIF2-45-7-5-1-B/CML206	CIMMYT	95	37	16	5.54	8.02	6.01	2.38	2.80	71.5
15 CML202/CML206	CIMMYT	90	40	12	5.79	9.55	6.17	1.88	2.40	73.9
43 PAN6195	PANNAR	93	40	16	5.77	6.88	6.88	2.57	2.17	72.1
81 ACD42 (Dwarf maize)	ACFD	93	41	19	5.49	7.39	6.88	2.38	2.51	71.7
38 INTB-117-1-2-1-1-BB/CML206	CIMMYT	90	41	18	5.62	4.79	6.23	2.38	2.58	71.9
28 LPSCJH144-1-2-2-4-#-BBB/CML206	CIMMYT	91	42	14	5.08	5.74	5.76	2.37	2.77	73.8
78 INBRED A/CML206	MALAWI	80	42	17	5.92	7.63	6.83	2.58	2.08	71.7
88 LOCAL CHECK	various origins	74	45	21	4.18	8.87	5.98	1.88	2.01	73.4
41 PAN113	PANNAR	81	48	19	5.62	4.31	6.88	2.33	1.94	71.8
80 ACD31 (Dwarf maize)	ACFD	78	50	19	4.98	4.84	4.88	1.98	3.29	71.8
59 ACD21 (Dwarf maize)	ACFD	76	51	14	4.37	4.88	6.13	1.98	2.14	71.7
58 ACD12 (Dwarf maize)	ACFD	71	52	15	4.74	5.98	4.88	1.88	1.88	72.3
63 ACD62 (Dwarf maize)	ACFD	66	55	13	4.18	6.64	5.81	1.88	1.38	72.7
62 ACD57 (Dwarf maize)	ACFD	66	55	12	4.28	5.62	3.81	1.88	1.84	71.5
Hybrids with anthesis date between 74 and 77 days										
29 PA3C9-1-7-1-1-1-BBB/CML206	CIMMYT	113	20	15	6.23	9.68	7.65	2.73	2.98	73.3
12 CML202/CML204/CML312	CIMMYT	109	23	21	6.34	11.57	7.58	1.90	3.19	76.0
18 CML312/CML206/CML395	CIMMYT	111	25	19	5.51	10.35	7.23	2.25	3.60	74.3
16 CML206/CML197	CIMMYT	110	27	19	3.71	11.35	8.91	2.19	3.48	78.9
24 CML206/CML206	CIMMYT	108	27	18	5.80	11.24	6.58	2.33	2.93	73.1
20 CML206/CML206	CIMMYT	102	28	17	5.78	8.42	6.83	2.27	2.53	74.3
35 LPSC4F273-2-2-1-BBB/CML206	CIMMYT	103	32	17	3.87	7.63	6.88	2.80	3.20	74.8
11 CML202/CML216/CML206	CIMMYT	94	34	19	3.35	9.32	6.10	2.27	2.73	74.7
84 DT92WCAH2-55-1-2-2-BBB/CML197	CIMMYT	91	37	18	5.38	9.32	6.34	1.88	2.58	74.1
27 LPSC3H144-1-2-2-2-#-BBB/CML206	CIMMYT	91	42	18	6.48	7.88	6.25	2.28	2.41	74.2
Mean		99	34	17	5.87	8.92	6.39	2.34	2.74	72.3
LSD					0.90	2.10	0.61	0.32	0.64	0.7
Min		66	18	12	4.18	4.37	4.44	1.02	1.09	68.1
Max		123	35	23	8.75	11.83	7.75	3.23	4.08	78.8

Color legend

- A Very good
- AB Good
- ABC Average
- BC Poor
- C Very poor

Within a maturity group, colors that have no letter in common are different by at least one LSD.

LSDs were calculated from the mean square error that was pooled across sites.

ILHYB99: Results of intermediate and late maturing hybrids from CIMMYT, CARGILL, DR&S, Malawi, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			Anth date	Plant height	Ear height	Ear posh	Lodging		Husk cover	Ear rot	GLS	Pucc asargh	E tuzick	Grain weevil	Grain text	Grain moist	
	Rel GY	Rank	Stdev					root	stem									
	%	Avg	Stdev	d	cm	cm	%	%	%	%	%	1-5	1-5	1-5	F1	1-5	%	
Hybrids with anthesis date between 68 and 74 days																		
24 [TUXPSEQ]C1F2P49-SR[F2-45-5-1-2-B/CML202	112	25	18	70.3	199	104	49	11	12	8	8	1.9	1.5	2.3	55	3.8	18.3	
25 [TUXPSEQ]C1F2P49-SR[F2-45-5-1-2-B/CML202	105	26	20	70.4	193	104	50	8	13	10	9	2.3	1.8	2.1	53	3.4	16.5	
47 PAN6573	110	27	19	70.6	201	108	48	6	11	15	7	2.8	2.0	2.1	95	4.6	17.1	
51 C8016	113	28	17	69.2	194	107	48	9	8	12	9	2.5	1.8	1.9	68	4.7	16.7	
58 C8001	107	34	20	68.1	188	97	47	6	10	11	12	2.8	2.4	2.1	54	4.6	16.8	
58 SC627	100	34	19	70.4	203	114	52	6	9	7	13	1.1	2.7	2.3	34	3.9	18.8	
52 C8037	100	38	23	69.0	190	102	49	10	14	15	16	4.1	2.7	2.7			4.5	16.4
49 PAN67	95	39	19	70.5	198	112	51	7	12	12	13	3.2	2.4	2.4	82	3.6	17.8	
38 'NBRED A/CML202	87	39	15	70.2	200	118	52	15	16	10	6	4.2	2.3	1.8	44	4.1	17.0	
55 SC621	86	40	15	70.1	208	114	51	10	10	9	5	3.0	1.9	2.3	53	3.9	16.3	
46 PAN6479	94	41	19	70.2	190	103	50	7	12	17	10	3.5	2.0	1.9	51	4.6	17.8	
40 973WH29	91	41	19	70.9	211	116	51	10	17	7	16	1.9	2.2	2.4	53	4.3	17.4	
42 PAN6193	89	45	19	68.5	191	103	49	10	15	17	18	4.0	2.3	2.8	69	4.5	16.7	
Hybrids with anthesis date between 71 and 74 days																		
65 M37WZM607#bF37sr-2-3sr-6-2-X]-8-2-X-1-BBB/P43C9-1-1-1-1-BBB	123	16	16	72.7	198	112	52	10	11	6	6	2.7	2.0	1.9	44	4.8	17.9	
13 CML202/CML204/CML312	121	19	16	71.8	205	113	49	8	14	10	6	3.4	2.0	2.3	72	3.3	17.4	
7 CML202/CML395/CML312	116	20	21	71.8	203	109	50	7	9	11	5	3.1	1.8	2.1	78	3.5	18.7	
10 CML202/CML216/CML312	112	20	19	72.0	211	112	49	8	10	9	4	2.7	1.8	2.0	37	3.0	17.8	
53 C8027	114	22	15	73.7	203	111	51	10	12	5	4	1.8	2.5	2.2	55	3.3	16.9	
19 M37WZM607#bF37sr-2-3sr-6-2-X]-8-2-X-1-BBB/CML202	113	25	15	71.0	196	107	50	12	10	6	8	3.2	1.8	1.7	83	4.5	17.6	
54 C8040	116	27	20	sterile	194	112	54	10	11	7	15	1.9	2.6	2.1			4.5	16.4
4 CML202/CML216/CML312/CML206	108	27	12	72.3	195	104	50	8	14	8	6	3.6	1.9	2.0	82	3.0	17.4	
18 BS19S2no68-1-2-BBB/CML202	111	27	14	72.4	192	108	50	10	15	8	8	2.9	2.3	2.6	22	3.8	16.8	
48 PAN6587	110	27	16	71.4	200	110	51	7	9	15	14	2.5	2.3	2.2	124	4.6	17.6	
22 [AC8342/KENNE{1}8149SR/PL9A]C1F1-500-4-X-1-1-BB-1-B/CML202	106	28	13	71.0	185	106	51	12	13	6	3	2.2	1.7	2.3	70	3.0	17.4	
44 PAN6243	109	28	15	71.4	201	114	50	11	9	15	9	3.5	2.2	2.0	83	4.7	16.9	
9 CML204/CML216/CML312	102	29	18	72.1	214	116	51	10	13	10	7	3.4	1.6	1.9	48	3.0	19.5	
30 DRB-F2-60-1-1-1-B/CML206	107	29	18	72.0	200	107	48	9	8	9	6	2.3	1.8	1.9	79	3.0	18.4	
5 CML204/CML216/CML312/CML206	102	29	16	72.6	210	114	51	9	10	8	6	3.9	1.9	2.7	91	2.9	18.5	
17 CML216/MBR-ET(W)F2 14-S8	108	30	17	72.1	213	116	49	10	12	10	7	3.4	1.8	2.1	44	2.6	18.7	
21 SNSYNF2[N3TUX-A-90]-28-1-3-1-BSR-BB/CML202	103	30	18	72.4	191	109	52	12	16	14	6	2.7	1.8	2.5	67	4.5	17.9	
6 CML202/CML395/CML390	103	30	14	72.0	200	111	51	9	18	8	3	3.3	1.8	2.2	40	1.8	18.5	
1 CML202/CML204/CML312/CML206	104	30	15	73.4	198	108	50	9	12	8	6	3.8	2.1	2.4	35	3.2	17.8	
3 CML202/CML395/CML312/CML206	99	31	15	72.3	201	108	50	8	12	11	7	3.2	1.4	2.0	61	3.3	18.5	
2 CML202/CML395/CML390/CML206	99	32	18	72.9	198	109	52	8	14	8	5	3.7	1.8	1.9	61	2.7	17.6	
31 SCZM605#b-19-2-X]-1-2-X-1-1-BBB/CML206	101	32	18	72.5	197	105	49	8	9	11	3	2.6	1.8	2.3	53	2.7	17.6	
14 CML390/CML206/CML395	100	33	14	73.7	196	108	51	8	10	8	5	3.1	2.1	2.5	68	4.0	18.9	
23 LPSC4F273-2-2-3-BBB/CML202	102	33	15	73.1	201	107	49	10	14	13	5	2.7	2.3	2.3	37	3.3	16.8	
32 ZSR923S4BLK-2-2-X-X-X-1-BBB/CML206	97	33	18	73.2	188	94	47	9	11	9	4	2.6	2.1	2.3	81	2.6	17.0	
45 PAN6335	102	33	19	71.5	195	104	46	8	7	18	5	3.5	2.3	2.2	67	4.8	16.5	
20 LATA-F2-138-1 3-1-BB/CML202	97	34	18	71.9	200	110	49	14	16	7	4	3.5	2.0	2.4	73	3.0	17.6	
57 SC709	92	35	22	73.0	212	120	53	11	9	10	10	1.1	2.3	2.0	50	4.6	19.3	
35 DRB-F2-180-2-1-BB/CML206	98	36	15	73.3	188	99	49	7	11	8	12	3.3	1.9	2.6	44	3.7	18.7	
37 [TUXPSEQ]C1F2P49-SR[F2-45-5-1-2-B/CML202	95	37	16	71.5	186	102	50	7	13	11	24	3.1	1.6	2.4	41	3.4	17.5	
15 CML202/CML206	90	40	12	73.9	190	102	48	8	17	6	3	3.5	1.6	2.0	120	3.1	17.7	
43 PAN6195	93	40	16	72.1	203	113	51	10	11	10	22	3.9	2.4	2.3	66	4.1	18.4	
61 ACD42 (Dwarf maize)	93	41	19	71.8	147	67	42	7	8	7	12	2.3	1.8	2.2	82	3.4	18.1	
36 'NTB-117-1-2-1 1 BB/CML206	90	41	18	71.7	187	95	49	8	10	10	7	2.0	1.9	2.6	48	3.1	17.1	
28 LPSC3H144-1-2-2-4-#-BBB/CML206	91	42	14	73.8	192	96	46	8	6	6	6	1.6	2.2	2.6	23	3.6	17.0	
39 INBRED A/CML206	90	42	17	71.7	199	107	48	12	15	8	8	4.7	2.0	2.0	168	4.1	17.7	
66 LOCAL CHECK	74	45	21	73.4	212	120	55	9	10	11	10	2.2	2.1	2.4	62	3.7	17.4	
41 PAN413	81	46	19	71.6	174	89	49	12	13	20	14	3.8	2.1	2.1	68	4.7	18.3	
60 ACD31 (Dwarf maize)	78	50	19	71.6	131	59	41	9	8	11	22	1.6	1.9	3.1	60	3.9	18.0	
59 ACD21 (Dwarf maize)	76	51	14	71.7	139	58	38	10	6	8	16	1.5	2.3	3.2	91	4.1	18.4	
58 ACD12 (Dwarf maize)	71	52	15	72.3	139	59	39	7	8	7	26	1.6	1.4	2.9	81	4.1	17.7	
63 ACD62 (Dwarf maize)	66	55	13	72.7	149	64	38	6	6	9	17	1.9	2.0	3.0	51	4.2	19.5	
62 ACD51 (Dwarf maize)	66	55	12	71.5	144	63	40	7	9	15	16	1.9	1.8	3.0	74	4.2	18.1	
Hybrids with anthesis date between 74 and 77 days																		
29 P43C9-1-1-1-1-BBB/CML206	115	20	15	75.3	200	111	49	9	8	6	3	2.1	2.0	2.6	99	4.0	17.5	
12 CML202/CML395/CML197	109	23	21	76.0	223	134	58	9	8	6	3	2.5	1.8	2.5	51	2.1	20.5	
8 CML312/CML206/CML197	111	25	19	74.3	211	121	56	8	8	9	6	2.5	1.8	2.1	72	1.8	19.9	
16 CML216/CML197	110	27	19	76.9	225	139	56	9	5	4	3.7	1.8	2.1	74	1.6	19.2		
34 CML395/CML206	106	27	19	75.1	201	107	50	8	11	6	3	3.1	1.8	2.1	70	3.0	18.8	
33 CML388/CML206	103	30	17	74.3	201	106	46	8	7	10	8	1.6	1.7	2.3	36	3.5	17.0	
26 LPSC4F273-2-2-1-BBB/CML206	105	32	17	74.8	193	103	48	11	10	7	4	3.5	1.8	2.5	54	3.2	17.1	
11 CML202/CML216/CML206	96	34	19	74.7	194	107	51	10	13	6	5	4.0	1.8	2.2	83	2.6	18.6	
64 DTP2WC4H255-1-2-2-BBB/CML197	91	37	18	74.1	205	122	55	10	10	6	3	3.0	1.6	2.2	23	2.7	18.4	
27 LPSC3H144-1-2-2-2-#-BBB/CML206	91	42	18	74.2	195	100	48	10	7	5	18	2.2	1.7	2.4	28	3.6	18.9	
Mean	90	34	17	72.2	194	105	49	9	11	10	8	2.8	2.0	2.3	64	3.5	17.8	
LSD				0.7	8	8	4	4	5	5	8	0.6	0.5	0.5	45	0.3		

TZONE99: Results of OPVs from CIMMYT adapted to the transition zone across eastern and southern Africa, 1998/99.

Entry	Pedigree	Origin	Across		Across		Kitale Ken		Greytown RSA		Arusha Tan		Namulonge Uga		ART Farm Zim		Ruwa Zim		
			Rel GY	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha
15	CML202/CML395/CML312/CML206	CIMMYT	123	4.0	4.4	8.26	4.0	13.91	2	5.73	1	9.46	8	6.82	1	5.22	11	8.43	1
4	[AC969A-SR(S1 of best Sn)]F2	CIMMYT	105	5.5	3.4	7.06	5.5	9.86	3	4.58	5	9.93	4	4.97	6	6.03	3	6.97	12
2	[AC969A-SR(Sn of best FS)]F2	CIMMYT	101	6.3	4.0	6.83	6.3	8.63	10	3.65	12	10.33	2	4.97	7	5.84	4	7.57	3
3	[AC969A-SR(Sn of best Sn)]F2	CIMMYT	104	7.2	3.6	6.90	7.2	9.27	8	5.16	2	9.38	10	5.09	5	5.15	12	7.36	6
8	[TZ969A(Sn)-SR]F2	CIMMYT	102	7.2	3.8	6.84	7.2	9.05	9	4.61	4	9.80	6	4.41	11	6.05	2	7.10	11
6	[AC969A-SR(S3 of best Sn)]F2	CIMMYT	101	8.0	3.8	6.70	8.0	8.18	12	4.09	8	9.34	11	4.88	8	6.42	1	7.28	8
11	[UG969A(FS)-SR]F2	CIMMYT	96	8.3	4.5	6.44	8.3	7.04	15	4.00	9	9.81	5	4.85	9	5.34	10	7.60	2
1	[AC969A-SR(Best FS)]F2	CIMMYT	100	8.5	3.3	6.66	8.5	8.56	11	3.94	10	8.79	12	5.94	3	5.40	8	7.28	7
7	[TZ969A(FS)-SR]F2	CIMMYT	102	8.5	6.8	6.98	8.5	9.85	4	3.50	15	10.58	1	6.29	2	4.85	15	6.80	14
12	[UG969A(Sn)-SR]F2	CIMMYT	96	8.8	3.9	6.61	8.8	9.73	5	3.52	14	9.46	9	3.98	13	5.47	7	7.48	5
5	[AC969A-SR(S2 of best Sn)]F2	CIMMYT	96	9.2	5.0	6.28	9.2	8.08	13	4.65	3	7.38	16	4.68	10	5.34	9	7.54	4
9	[ET969A(FS)-SR]F2	CIMMYT	97	9.3	3.9	6.69	9.3	9.60	7	3.77	11	10.18	3	4.41	12	4.95	14	7.21	9
16	LOCAL CHECK	various origins	105	10.0	6.8	7.41	10.0	15.10	1	3.45	16	9.57	7	5.81	4	4.66	16	5.86	16
14	[MSR/POOL9A]C3F2-##	CIMMYT	90	11.3	4.2	5.93	11.3	7.22	14	4.39	7	7.59	15	3.93	14	5.61	5	6.84	13
10	[ET969A(Sn)-SR]F2	CIMMYT	92	11.5	4.4	6.30	11.5	9.64	6	3.56	13	8.51	13	3.88	16	5.48	6	6.72	15
13	[MSR/POOL9A]C2F3-#	CIMMYT	89	12.3	3.7	5.88	12.3	6.29	16	4.46	6	8.41	14	3.89	15	5.06	13	7.14	10
Mean			100	8.5	4.4	6.73	8.5	9.38	9	4.19	9	9.28	9	4.93	9	5.43	9	7.20	9
LSD (0.05)						0.75		2.91		1.18		2.02		1.86		0.00		0.88	
Min			89	4.0	3.3	5.88	4.0	6.29	1	3.45	1	7.38	1	3.88	1	4.66	1	5.85	1
Max			123	12.3	6.8	8.26	12.3	15.10	16	5.73	16	10.58	16	6.82	16	6.42	16	8.43	16

Color legend



Within a maturity group, colors that have no letter in common are different by at least one LSD.

LSDs were calculated from the mean square error that was pooled across sites.

TZONE99: Results of OPVs from CIMMYT adapted to the transition zone across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Anth date	Plant height	Ear height	Ear posit	Lodging		Husk cover	Ear rot	GLS	E turcic	MSV	Grain text	Grain moist
	Rel GY	Rank					root	stem							
	%	Avg	d	cm	cm	%	%	%	%	%	1-5	1-5	1-5	1-5	%
15 CML202/CML395/CML312/CML206	123	4.0	76.0	251	134	55	3	3	11	3	2.5	2.7	3.5	2.2	18.4
4 [AC969A-SR(S1 of best Sn)]F2	105	5.5	74.4	240	136	57	4	7	7	10	1.9	2.2	2.6	2.7	17.3
2 [AC969A-SR(Sn of best FS)]F2	101	6.3	73.9	235	128	54	1	8	9	8	1.9	2.4	2.1	2.7	15.6
3 [AC969A-SR(FS of best Sn)]F2	104	7.2	75.5	238	124	53	4	11	9	7	1.9	2.4	3.5	2.2	17.4
8 [TZ969A(Sn)-SR]F2	102	7.2	75.6	243	132	54	5	7	8	6	1.7	2.0	2.4	2.1	18.1
6 [AC969A-SR(S3 of best Sn)]F2	101	8.0	74.4	235	119	50	12	14	8	6	1.5	2.2	1.0	2.4	17.6
11 [UG969A(FS)-SR]F2	96	8.3	75.9	255	142	56	5	19	8	8	2.1	1.9	3.3	2.1	18.6
1 [AC969A-SR(Best FS)]F2	100	8.5	76.8	242	132	54	7	6	8	9	1.7	1.8	3.3	2.3	18.1
7 [TZ969A(FS)-SR]F2	102	8.5	76.0	248	131	53	5	8	7	7	1.8	2.2	3.1	2.3	18.1
12 [UG969A(Sn)-SR]F2	96	8.8	75.8	235	128	54	9	6	13	8	1.6	2.1	2.2	2.7	16.9
5 [AC969A-SR(S2 of best Sn)]F2	96	9.2	72.8	244	128	52	6	7	9	5	1.5	2.1	2.4	2.4	17.2
9 [ET969A(FS)-SR]F2	97	9.3	75.9	250	139	56	3	10	8	8	2.0	2.0	3.3	2.3	17.7
16 LOCAL CHECK	105	10.0	73.2	333	215	64	10	21	5	5	3.6	2.5	3.2	1.7	18.2
14 [MSR/POOL9A]C3F2-##	90	11.3	75.5	246	132	54	6	15	11	9	2.3	2.4	1.6	2.6	16.8
10 [ET969A(Sn)-SR]F2	92	11.5	75.5	227	115	51	2	4	7	8	1.5	2.0	3.1	2.0	16.7
13 [MSR/POOL9A]C2F3-#	89	12.3	73.4	255	130	52	6	17	10	9	2.5	2.4	2.9	2.6	17.5
Mean	100	8.5	75.0	249	135	54	6	10	9	7	2.0	2.2	2.7	2.3	17.5
LSD (0.05)			1.6	26	17	5	5	8	4	4	0.3	0.4	0.6	0.4	1.6
Min	89	4.0	72.8	227	115	50	1	3	5	3	1.5	1.8	1.0	1.7	15.6
Max	123	12.3	76.8	333	215	64	12	21	13	10	3.6	2.7	3.5	2.7	18.6

EAL199: Results of elite inbred lines from CIMMYT across eastern and southern Africa, 1998/99. Caution: very large grain yields of inbred lines may result from outcrosses or volunteers. Other traits such as plant height, lodging and disease resistance would also likely be affected by the presence of full-vigor plants in place of inbred lines

Entry	Pedigree	Origin		Across		Blako Eti		Uga		Masaka Uga		Rat. Arnold Zim		Anth		Eir					
		Rel GY	Rank	%	Avg	Stdev	Uha	Rank	Uha	Rank	t/ha	Rank	t/ha	Rank	d	cm	cm	posil			
Inbred lines with anthracnose data between 69 and 73 days																					
6	CML312	CIMMYT	149	15	12	1.80	16	0.39	28	0.40	21	3.26	1	1.05	26	3.92	2	69.0	159	67	39
15	CML394	CIMMYT	70	23	9	0.78	23	0.73	18	0.26	29	1.09	5	0.70	31	1.12	31	70.2	119	59	47
16	[MSRXP00]9C1F2-176-4-1-4-X-X-2-BB-2-1-BB	CIMMYT	57	26	5	0.66	26	0.20	32	0.32	25	0.46	21	1.19	20	1.12	30	72.7	127	58	43
Inbred lines with anthracnose data between 73 and 76 days																					
8	CML387	CIMMYT	64	27	6	0.55	29	0.25	31	0.18	31	0.39	25	0.64	27	1.00	32	75.9	132	59	42
11	CML390	CIMMYT	85	18	9	0.93	19	0.71	19	0.58	6	0.77	10	0.81	30	1.78	28	75.5	126	62	45
12	CML391	CIMMYT	172	14	9	2.35	10	6.16	1	0.49	11	1.00	6	1.77	11	2.35	21	75.6	147	67	48
30	[EV7992#EV8449-SR]C1F2-334-1(OSU8)-1-4-X-X-2-BB-BB	CIMMYT	116	14	10	1.34	16	0.59	26	0.44	16	1.20	4	0.90	28	3.58	4	73.2	128	57	43
Inbred lines with anthracnose data between 76 and 79 days																					
2	CML202	CIMMYT	96	16	9	1.30	16	0.69	20	0.24	30	0.64	12	1.93	10	2.96	10	78.4	129	59	42
3	CML204	CIMMYT	81	22	13	1.13	23	0.56	27	0.22	32	0.22	32	2.49	3	1.27	29	77.6	138	76	53
5	CML216	CIMMYT	97	18	12	1.42	16	2.49	2	0.49	12	0.25	31	1.94	8	1.95	27	78.2	138	76	51
7	CML386	CIMMYT	115	13	7	1.36	15	0.65	24	0.43	18	0.71	11	2.31	5	2.70	16	78.1	121	67	52
9	CML388	CIMMYT	91	18	7	1.12	18	1.20	7	0.39	23	0.43	23	1.33	17	2.27	22	77.5	154	71	45
17	ZSR 923 S4BULK-2-2-X-X-X-1-BB-1-1-BB	CIMMYT	94	18	11	1.56	13	2.05	3	0.28	28	0.50	19	1.07	7	2.98	9	77.4	123	62	46
18	[EV7992#EV8449-SR]C1F2-334-1(OSU9)-8-2(U)-X-1-6-BB-1-1-BB	CIMMYT	96	16	7	1.22	15	1.30	5	0.47	14	0.54	15	1.13	24	2.64	17	78.8	153	77	49
19	90323(B)-1-X-1-BB-1-1-BB	CIMMYT	85	19	7	1.07	22	0.80	15	0.32	26	0.29	28	1.06	25	2.87	14	77.7	190	76	49
20	90323(B)-1-X-1-BB-2-1-BB	CIMMYT	114	13	9	1.27	15	1.43	4	0.44	15	0.32	27	1.14	22	3.04	8	77.7	188	82	50
23	M37WZM6056b-19-2-X)-8-1-X-1-BB-BB	CIMMYT	138	9	7	1.36	11	1.12	8	0.50	10	1.30	3	1.32	16	2.55	18	76.7	141	74	50
24	MSR123 X1137TN-6-3-1-X-1-1-BB-BB	CIMMYT	138	13	8	1.52	13	0.98	9	0.41	20	2.34	2	1.1	22	2.36	20	76.6	140	71	46
25	[EV7992#EV8449-SR]C1F2-334-1(OSU9)-8-2(U)-X-1-5-BB-BB	CIMMYT	119	11	6	1.40	13	0.96	10	0.41	19	0.54	14	2.24	6	2.85	15	77.4	145	69	45
26	[B24S2XB810(3)-1-31-X-14-2-3-X-BB-BB	CIMMYT	79	23	10	1.23	21	0.35	30	0.39	22	0.29	29	3.08	1	2.07	25	77.6	159	73	43
27	[EV7992#EV8449-SR]C1F2-334-1(OSU9)-8-2(U)-X-1-5-BB-BB	CIMMYT	92	16	11	1.31	12	0.36	29	0.57	8	0.84	8	1.71	12	3.10	5	77.8	129	60	44
28	[AC8342#KENNE(1)8149SR2(FL9A)#b-96-3-4-2-X-3-BB-BB	CIMMYT	148	9	9	1.61	12	0.85	12	0.37	24	0.51	17	2.49	2	3.63	3	77.4	154	87	53
29	[MSR131]-3-3-2-X-X-X-2-BB-BB	CIMMYT	97	15	10	1.28	13	0.74	16	0.70	3	0.51	18	2.42	4	2.05	26	77.1	148	77	50
31	[EV7992#EV8449-SR]C1F2-334-1(OSU8)-1-4-X-X-4-BB-BB	CIMMYT	104	14	5	1.18	16	0.66	21	0.49	13	0.47	20	1.34	16	2.85	11	77.7	131	64	47
33	[EV7992#EV8449-SR]C1F2-334-1(OSU8)-1-4-X-X-3-BB-BB	CIMMYT	95	18	10	1.05	17	0.64	25	0.67	4	0.60	13	1.19	21	2.14	23	76.5	133	58	40
Inbred lines with anthracnose data between 79 and 82 days																					
1	CML197	CIMMYT	67	23	6	0.99	24	0.65	22	0.17	32	0.40	24	0.84	29	2.88	12	81.5	158	86	55
4	CML206	CIMMYT	82	19	8	1.13	16	0.65	23	0.62	5	0.53	16	1.70	13	2.14	24	79.4	138	57	44
10	CML389	CIMMYT	80	19	7	0.98	21	0.20	33	0.44	17	0.44	22	1.37	14	2.46	19	79.8	156	76	47
13	CML392	CIMMYT	112	15	11	1.07	18	0.90	11	0.53	9	0.34	26	0.70	32	2.97	13	80.2	143	71	47
14	CML393	CIMMYT	82	23	12	0.69	21	0.74	17	0.86	1	0.08	33	1.20	19	0.58	33	81.9	142	69	46
21	90323(B)-1-X-3-BB-2-2-BB	CIMMYT	113	10	6	1.48	8	0.81	14	0.73	2	0.84	9	1.93	9	3.09	6	79.5	140	71	50
22	90323(B)-1-X-5-BB-3-1-BB	CIMMYT	107	12	9	1.59	9	1.21	6	0.58	7	0.96	7	1.13	23	4.08	1	80.2	148	78	50
32	[AC8330#NPPXSG#WEEB(1)TZMSR-W]#b-144-5-4-1-X-2-BB-BB	CIMMYT	94	16	9	1.16	19	0.81	14	0.29	27	0.29	30	1.36	15	3.07	7	79.2	151	82	53
Summary Statistics																					
Mean			100	17	9	1.24	17	0.99	17	0.45	17	0.71	17	1.52	17	2.50	17	77.2	144	70	47
LSD (0.05)						0.76		3.35		0.42		0.76		1.26		1.99		2.0		9	5
Min			54	9	5	0.55	8	0.20	1	0.17	1	0.08	1	0.70	1	0.58	1	69.0	119	57	39
Max			172	27	13	2.35	29	6.16	33	3.26	32	3.26	33	3.08	32	4.36	33	81.9	159	87	55

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Grain yield - Lowlands																
	Rel.GY	Rank	Across		Baka Mal		Chitala Mal		Mutarara Moz		SEMOC Moz		Tete Moz		Umbeluzi Moz		Ilonga Tan		
%	Avg	Sidev	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	
OPVs with anthesis date between 54 and 57 days																			
5	Z97EWA-F2/Z97EWB-F2	5	3.33	14	6.05	6	2.95	19	3.23	14	4.66	14	1.89	13	3.93	10	2.60	17	
10	[EARLY-MID-1/KATUMANI-SR]-#	6	3.18	14	4.51	22	3.43	13	2.43	22	4.25	21	1.99	9	3.45	20	2.44	19	
3	Z97EWA-F2-#	6	3.23	14	5.23	18	2.64	20	2.90	19	5.24	7	1.76	17	3.93	9	2.25	22	
4	Z97EWB-F2-#	6	2.97	18	4.42	23	2.52	21	2.51	21	5.12	10	1.79	16	3.73	14	2.23	23	
OPVs with anthesis date between 57 and 59 days																			
12	ZM421 = SADVE F1	3	3.71	7	5.69	10	3.92	6	3.58	6	5.24	8	2.39	4	4.56	4	2.96	5	
5	ZM303 = [EARLY-MID-2/PL16-SR]-#	5	3.60	9	5.53	13	4.06	4	3.51	7	5.12	9	1.82	15	3.68	15	3.44	2	
9	[TEWD-SRDRTOLSYNI/NAW5867/P30-SR(S2#)]##	5	3.38	12	5.25	17	2.96	18	3.46	8	4.65	15	2.05	7	4.22	7	2.63	15	
1	ZM301	5	3.48	10	5.37	16	3.76	7	3.42	10	4.38	19	1.87	14	3.79	12	3.36	3	
15	DTP1-W C6 SEL PRECOZ F3	7	3.16	16	5.51	14	3.12	17	2.08	24	4.02	22	1.75	18	4.57	3	2.73	12	
11	[VAR/TEMP/HILANDPOPI]-#	6	3.10	16	4.83	21	3.21	15	2.92	18	3.63	24	1.91	12	3.56	17	2.93	7	
9	[EV7992/POOL16-SR]#61SEL-F3	5	3.39	13	5.62	12	3.74	8	3.33	13	4.60	16	1.69	20	4.17	8	3.02	4	
18	KATUMANI-ST-#	6	3.44	13	5.83	9	3.56	10	3.71	4	4.38	20	1.64	21	3.64	16	2.19	24	
16	POOL16 BNSEQ C1 F2	6	2.93	18	4.87	20	2.49	22	2.37	23	4.45	17	1.99	8	3.76	13	2.47	18	
7	[DMRESR-W]#b[EARLY SEL]-#	5	3.02	17	5.44	15	2.47	23	3.44	9	3.69	23	2.07	6	3.30	22	2.28	21	
OPVs with anthesis date between 59 and 62 days																			
13	ZM521 = { SADV1 F1	3	4.23	2	6.44	4	4.61	1	4.50	2	5.98	4	2.67	2	4.70	2	3.56	1	
14	{ SADV2 F1	4	3.98	5	6.04	7	4.53	2	4.96	1	5.09	11	2.60	3	4.92	1	2.76	11	
17	MAINDIRI-#	7	3.40	12	5.65	11	4.25	3	3.17	16	4.42	18	2.15	5	3.40	21	2.94	6	
2	GRACE (EWF-2)-#	6	3.54	12	5.93	6	3.62	9	3.36	12	5.98	3	1.49	22	3.86	11	2.61	16	
24	LOCAL CHECK 3	8	3.09	17	5.17	19	3.13	16	3.18	15	4.98	12	1.75	19	3.16	24	2.80	10	
23	LOCAL CHECK 2	7	3.19	17	6.09	5	3.49	12	2.66	20	5.89	5	1.30	23	3.28	23	2.88	8	
22	LOCAL CHECK 1	8	3.09	18	4.08	24	2.35	24	3.06	17	6.11	1	1.19	24	3.45	19	2.72	13	
19	RITO-ST-#	6	3.47	12	6.66	2	3.32	14	3.60	5	4.87	13	1.95	11	3.51	18	2.31	20	
OPVs with anthesis date between 63 and 64 days																			
21	SYNTHETIC-NUE-SR-#	8	3.89	6	6.80	1	3.97	5	3.77	3	5.99	2	1.97	10	4.33	6	2.63	14	
20	SYNTHETIC-DR-SR-#	7	3.85	8	6.59	3	3.57	11	3.39	11	5.66	6	3.11	1	4.42	5	2.84	9	
Mean																			
			3.40	13	5.56	13	3.40	13	3.27	13	4.93	13	1.95	13	3.89	13	2.73	13	
LSD (0.05)			0.26		0.89		0.93		1.24		1.00		0.51		0.77		0.76		
Min			2.93	2	4.08	1	2.35	1	2.08	1	3.63	1	1.19	1	3.16	1	2.19	1	
Max			4.23	18	6.80	24	4.61	24	4.96	24	6.11	24	3.11	24	4.92	24	3.56	24	

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across						Grain yield - Lowlands						Grain yield - Midaltitudes eastern Africa										
	Rel GY			Rank			Ketrin Tan		Mlingano Tan		Msekera Zam		Makoholi Zim		Across		Bako Eth		Mtwapa Ken		Namulonge Uga		
	%	Avg	Sidev	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank
OPVs with anthesis date between 54 and 57 days																							
5	Z97EWA-F2/Z97EWB-F2	101	12	5	2.56	16	5.04	16	1.45	12	2.25	15	3.13	18	4.83	21	2.27	12	2.27	12	2.28	21	
10	[EARLY-MID-1/KATUMANI-SR]-#	98	13	6	3.20	5	5.14	15	1.51	6	2.65	5	3.76	14	6.06	15	2.31	10	2.31	10	2.91	16	
3	Z97EWA-F2-#	94	15	6	2.94	9	4.58	19	1.52	4	2.51	8	3.38	18	5.29	19	2.16	17	2.16	17	2.70	17	
4	Z97EWB-F2-#	92	15	6	2.06	23	4.52	20	1.18	22	2.57	7	3.29	15	4.40	23	2.50	6	2.50	6	2.97	15	
OPVs with anthesis date between 57 and 59 days																							
12	ZM421 = SADVE F1	119	5	3	2.85	10	5.53	8	1.58	2	2.50	9	4.22	8	6.15	12	2.65	5	2.65	5	3.87	6	
6	ZM303 = [EARLY-MID-2/PL16-SR]-#	105	10	5	3.10	5	5.21	13	1.46	11	2.57	4	3.91	12	5.91	17	2.38	8	2.38	8	3.45	10	
8	[TEWD-SRDRTOLESYNI/NAW5867/P30-SR(S2#)]##	100	12	5	2.76	13	5.21	14	1.48	9	2.46	11	4.00	13	6.13	14	2.17	16	2.17	16	3.70	8	
1	ZM301	103	12	5	3.08	7	5.25	11	1.52	5	2.46	10	3.57	12	4.49	22	2.79	4	2.79	4	3.44	11	
15	DTP1-W C6 SEL. PRECOZ F3	104	14	7	2.80	11	4.90	17	1.33	19	1.94	21	3.63	16	6.87	9	2.21	15	2.21	15	1.82	24	
11	[VARTEMPHILANDPOP]-##	95	14	6	2.51	18	5.35	9	1.50	8	1.92	23	4.16	13	6.74	10	2.08	19	2.08	19	3.65	9	
9	[EV7992/POOL16-SR]#6S1SEL-F3	95	14	5	2.60	15	4.75	18	1.39	16	2.37	14	3.83	12	6.14	13	2.34	9	2.34	9	3.00	14	
18	KATUMANI-ST-#	96	16	6	2.96	8	6.50	1	1.40	13	2.07	19	3.74	17	5.88	16	1.91	23	1.91	23	3.33	12	
16	POOL 16 BNSEQ C1 F2	88	17	6	2.18	20	4.44	21	1.17	23	2.08	18	3.18	21	5.50	18	1.64	24	1.64	24	2.40	20	
7	[DMRESR-W]#b(EARLY SEL)-#	90	17	5	2.51	19	4.27	23	1.39	15	2.41	12	3.23	18	5.17	20	2.26	13	2.26	13	2.27	22	
OPVs with anthesis date between 59 and 62 days																							
13	{ SADVT F1	127	3	2	3.77	1	5.88	2	1.67	1	2.81	2	5.28	3	8.10	5	3.07	1	3.07	1	4.67	3	
14	ZM521 = { SADV2 F1	124	5	4	3.24	4	5.30	10	1.54	3	2.75	3	5.17	3	8.72	3	2.90	2	2.90	2	3.88	5	
17	MATINDIRI-#	95	13	7	2.08	22	5.74	4	1.50	7	2.06	20	4.33	12	6.70	11	2.04	20	2.04	20	4.24	4	
2	GRACE (EWF-2)-#	98	13	6	2.79	12	5.54	7	1.38	17	2.41	13	4.48	9	8.03	6	2.79	3	2.79	3	2.64	19	
24	LOCAL CHECK 3	102	14	8	1.73	24	4.03	24	1.08	24	2.96	1	3.99	17	8.02	7	1.93	22	1.93	22	2.02	23	
23	LOCAL CHECK 2	90	15	7	2.10	21	4.44	22	1.26	21	1.82	24	4.36	13	8.25	4	2.15	18	2.15	18	2.68	18	
22	LOCAL CHECK 1	91	16	8	2.56	17	5.24	12	1.32	20	1.94	22	3.29	16	4.97	24	2.29	11	2.29	11	3.23	13	
19	KITO-ST-#	88	16	6	2.66	14	5.71	5	1.36	18	2.22	16	4.45	12	7.67	8	1.98	21	1.98	21	3.70	7	
OPVs with anthesis date between 63 and 66 days																							
21	SYNTHETIC-NUE-SR-#	103	6	7	3.50	2	5.70	6	1.46	10	2.63	6	5.34	3	8.77	2	2.45	7	2.45	7	4.80	1	
20	SYNTHETIC-DR-SR-#	102	10	7	3.49	3	5.85	3	1.39	14	2.09	17	5.25	6	8.86	1	2.22	14	2.22	14	4.68	2	
Mean		100	12	6	2.75	13	5.17	13	1.41	13	2.36	13	4.04	13	6.55	13	2.31	13	2.31	13	3.26	13	
LSD (0.05)					1.06		0.73		0.19		0.61		0.68		1.88		0.67		0.67		1.22		
Min		88	3	2	1.73	1	4.03	1	1.08	1	1.82	1	3.13	3	4.37	1	1.64	1	1.64	1	1.82	1	
Max		127	17	8	3.77	24	6.50	24	1.67	24	2.96	24	5.34	21	8.86	24	3.07	24	3.07	24	4.80	24	

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Grain yield - Midaltitudes southern Africa										
	Rel CY	Rank	Across		Greytown RSA		ART Farm Zim		Glendale Zim		Ruwa Zim		
	%	Avg	Sidev	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank
OPVs with anthesis date between 54 and 57 days													
5 Z97EWA-F2/Z97EWF-F2	101	12	5	4.64	13	4.41	8	3.89	14	6.15	13	4.12	15
10 [EARLY-MID-1/KATUMANI-SR]#	98	13	6	5.00	10	4.00	14	4.86	8	6.76	7	4.35	9
3 Z97EWA-F2#	94	15	6	4.45	13	4.66	5	3.88	15	5.22	17	4.03	16
4 Z97EWF-F2#	92	15	6	4.04	20	3.72	21	3.70	17	5.02	19	3.71	21
OPVs with anthesis date between 57 and 59 days													
12 ZM421 = SADVE F1	119	5	3	5.19	7	4.56	6	4.91	6	6.53	8	4.74	7
6 ZM303 = [EARLY-MID-2/PL16-SR]#	105	10	5	5.15	8	4.93	4	4.77	9	6.29	12	4.59	8
8 [TEWD-SRDRTOLSYN/INAW5667/P30-SR(S2#)]##	100	12	5	4.51	13	4.09	11	3.97	12	5.84	16	4.14	14
1 ZM301	103	12	5	4.40	15	3.99	15	4.53	10	5.22	18	3.86	18
15 DTP1-W O6 SEL. PRECOZ F3	104	14	7	4.30	17	3.83	18	3.36	19	6.47	9	3.55	22
11 [VAR/TEMP-HILANDPOP]##	95	14	6	5.07	8	4.34	9	5.23	3	6.43	10	4.29	11
9 [EV7992/POOL16-SR]#BS1SEL-F3	95	14	5	4.20	18	3.38	24	2.81	22	6.42	11	4.18	13
18 KATUMANI-ST-#	96	16	6	4.27	15	4.51	7	3.98	11	4.89	21	3.72	20
16 POOL 16 BNSEQ C1 F2	88	17	6	3.55	22	3.98	16	2.70	24	4.57	23	2.94	24
7 [DMRESR-W]#b(EARLY SEL)-#	90	17	5	3.82	21	3.80	19	2.94	21	5.02	20	3.54	23
OPVs with anthesis date between 59 and 62 days													
13 ZM521 = { SADVI1 F1	127	3	2	5.03	3	5.33	3	6.08	2	7.06	4	5.65	2
14 { SADVI2 F1	124	5	4	5.23	2	6.38	1	6.25	1	7.23	3	5.05	4
17 MATINDIRI-#	95	13	7	4.43	15	4.05	12	3.84	16	5.89	15	3.94	17
2 GRACE (EWF-2)-#	98	13	6	4.24	18	3.79	20	3.27	20	6.06	14	3.85	19
24 LOCAL CHECK 3	102	14	8	4.76	13	3.41	23	3.66	18	7.65	2	4.31	10
23 LOCAL CHECK 2	90	15	7	5.49	7	4.01	13	4.88	7	8.13	1	4.94	5
22 LOCAL CHECK 1	91	16	8	4.24	17	3.58	22	2.78	23	4.63	22	5.97	1
19 KITO-ST-#	88	16	6	4.14	17	3.85	17	3.95	13	4.55	24	4.19	12
OPVs with anthesis date between 63 and 64 days													
21 SYNTHETIC-NUE-SR-#	103	8	7	5.73	4	5.40	2	5.16	4	6.77	6	5.59	3
20 SYNTHETIC-DR-SR-#	102	10	7	5.30	7	4.13	10	5.15	5	7.02	5	4.91	6
Mean	100	12	5	4.72	13	4.26	13	4.19	13	6.08	13	4.34	13
LSD (0.05)				0.35		1.43		0.86		1.48		0.76	
Min	88	3	2	3.55	2	3.38	1	2.70	1	4.55	1	2.94	1
Max	127	17	8	5.23	22	6.38	24	6.25	24	8.13	24	5.97	24

EPO99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Grain yield - Managed and random drought stress																							
	Rel GY	Rank	Across	Mazosa Ang	Goodhope Bot	Pandamat. Bot	Sebele Bot	Chitlala Mal	Morrumb. Moz	Nelspruit RSA	%	Avg	Stdev	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha			
OPVs with anthesis date between 54 and 57 days																										
5 Z97EWA-F2Z97EWB-F2	101	12	5	2.81	8	2.15	8	2.01	2	2.06	5	0.08	14	5.80	3	2.78	10	3.03	19							
10 [EARLY-MID-1/KATUMANI-SR]-#	98	13	6	2.57	12	1.46	14	1.95	3	1.67	16	0.06	17	5.83	2	2.00	22	3.61	5							
3 Z97EWA-F2-#	94	15	6	2.44	14	2.65	3	1.38	17	1.71	14	0.06	16	4.54	7	2.20	19	3.07	18							
4 Z97EWB-F2-#	92	15	6	2.51	10	1.60	12	1.55	15	2.10	4	0.08	11	4.26	9	3.06	5	3.35	14							
OPVs with anthesis date between 57 and 59 days																										
12 ZM421 = SADVE F1	119	5	3	3.15	3	2.68	2	2.07	1	1.96	10	0.14	5	6.09	1	3.15	3	4.76	1							
6 ZM303 = [EARLY-MID-2/PL16-SR]-#	105	10	5	2.33	12	1.33	15	1.77	4	1.94	11	0.09	10	3.61	17	2.51	15	2.98	20							
8 [TEWD-SRDRTOLESYN/INAW6867/P30-SR(S2#)]-##	100	12	5	2.56	10	1.75	11	1.77	5	2.00	9	0.08	12	4.45	8	3.38	1	3.68	9							
1 ZM301	103	12	5	2.64	10	2.64	4	1.69	8	1.54	19	0.13	6	4.96	5	2.71	12	3.53	12							
15 DTP1-W C6 SEL- PRECOZ F3	104	14	7	2.60	10	3.34	1	1.75	7	2.06	6	0.22	9	4.96	12	2.59	14	3.33	16							
11 [VAR/TEMP/HILANDPOP]-##	95	14	6	2.28	16	2.36	6	1.60	11	1.42	21	0.05	20	3.53	19	1.81	23	3.35	15							
9 [EV7992/POOL16-SR]#S1SEL-F3	95	14	5	2.32	16	2.31	7	1.69	9	1.41	22	0.04	22	3.57	18	2.78	11	3.53	11							
18 KATUMANI-ST-#	96	16	6	2.28	16	1.59	13	1.49	16	1.63	18	0.19	4	4.73	6	2.19	20	2.90	22							
16 POOL 16 BNSEQ C1 F2	88	17	6	2.50	10	1.20	16	1.59	12	2.22	2	0.08	14	4.17	10	2.82	9	3.65	10							
7 [DMRESR-W]#b(EARLY SEL)-#	90	17	5	2.13	17	0.95	20	1.04	23	1.93	12	0.12	7	3.63	16	2.47	16	3.24	17							
OPVs with anthesis date between 59 and 62 days																										
13 ZM521 = { SADV1 F1	127	3	2	2.91	5	2.44	5	1.63	10	2.61	1	0.06	12	4.96	4	3.13	4	3.97	3							
14 ZM521 = { SADV2 F1	124	5	4	2.74	5	1.94	10	1.75	6	2.04	7	0.24	1	3.84	13	2.92	8	4.01	2							
17 MATINDIRI-#	95	13	7	2.12	16	0.72	21	1.11	21	2.16	3	0.04	23	3.07	21	3.06	6	2.96	21							
2 GRACE (EWF-2)-#	98	13	6	2.42	12	2.11	9	1.57	13	1.66	17	0.11	9	3.76	14	2.43	17	3.75	7							
24 LOCAL CHECK 3	102	14	8	2.40	11	1.10	17	1.57	14	1.26	23	0.23	2	4.10	11	3.04	7	3.51	13							
23 LOCAL CHECK 2	90	15	7	1.94	18	0.33	23	1.18	19	1.49	20	0.06	18	2.54	23	2.00	21	3.70	8							
22 LOCAL CHECK 1	91	16	8	2.26	13	0.70	22	1.26	18	2.01	8	0.11	8	2.81	22	2.41	18	3.96	4							
19 KITO-ST-#	88	16	6	1.82	21	1.10	18	1.05	22	1.25	24	0.04	21	3.63	15	1.78	24	2.12	24							
OPVs with anthesis date between 63 and 64 days																										
21 SYNTHETIC-NUE-SR-#	103	8	7	1.97	17	0.33	24	1.14	20	1.71	15	0.02	24	2.14	24	3.37	2	3.69	5							
20 SYNTHETIC-DR-SR-#	102	10	7	2.07	17	1.04	19	0.89	24	1.74	13	0.06	18	3.27	20	2.61	13	2.30	23							
Mean	100	12	6	2.41	12	1.66	13	1.52	13	1.81	13	0.10	12	4.06	13	2.63	13	3.43	13							
LSD (0.05)				0.29		1.27		0.45		0.55		0.10		1.21		0.89		0.84								
Min	88	3	2	1.82	3	0.33	1	0.69	1	1.25	1	0.02	1	2.14	1	1.78	1	2.12	1							
Max	127	17	8	3.15	21	3.34	24	2.07	24	2.61	24	0.24	24	6.09	24	3.38	24	4.76	24							

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			Drought stress			Grain yield - Managed N stress								
	Rel GY	Rank		Arusha Tan	Chiredzi Zim	Across	Mazozo Ang	Sussund, Moz	CIMMYT Zim	DR&SS Zim					
%	Avg	Stdev	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	
OPVs with anthesis date between 54 and 57 days															
5 Z97EWA-F2/Z97EWB-F2	101	12	5	3.79	5	3.56	4	1.91	12	2.07	12	2.42	17	1.36	15
10 [EARLY-MID-1/KATUMANI-SR]#	98	13	6	3.22	19	3.14	12	1.78	15	1.96	16	2.49	13	1.35	16
3 Z97EWA-F2#	94	15	6	3.22	19	3.16	10	1.67	19	1.97	15	2.31	22	1.14	20
4 Z97EWB-F2#	92	15	6	3.24	16	3.34	5	1.75	15	2.08	11	2.47	15	1.52	12
OPVs with anthesis date between 57 and 59 days															
12 ZM421 = SADVE F1	119	5	3	3.87	4	3.65	2	2.44	4	2.37	3	2.55	8	2.19	2
6 ZM303 = [EARLY-MID-2/PL16-SR]#	105	10	5	3.57	7	3.16	9	2.19	6	2.15	10	2.56	7	2.13	4
8 [TEWD-SRDRTOLESYN/NAW5867/P30-SR(S2#)]##	100	12	5	3.14	22	2.81	15	1.85	12	2.04	13	2.50	11	1.65	7
1 ZM301	103	12	5	3.43	13	3.15	11	1.74	16	1.84	18	2.23	23	1.57	9
15 DTP1-W C6 SEL_PRECOZ F3	104	14	7	3.24	18	2.77	16	2.13	9	2.34	4	2.32	20	2.12	5
11 [VAR/TEMP-HILANDPOP]##	95	14	6	3.29	15	2.94	13	1.76	16	2.15	9	2.37	19	1.22	18
9 [EV7992/POOL16-SR]#bS1SEL-F3	95	14	5	2.87	23	2.65	19	1.77	15	2.24	6	2.40	18	1.38	14
18 KATUMANI-ST#	96	16	6	3.21	21	2.61	21	1.50	21	1.45	24	2.45	16	0.94	24
16 POOL 16 BNSEQ C1 F2	88	17	6	3.50	11	3.25	8	1.69	18	1.82	20	2.09	24	1.24	17
7 [DMRESR-W]#b(EARLY SEL)#	90	17	5	3.24	17	2.59	22	1.89	11	2.16	8	2.49	14	1.55	10
OPVs with anthesis date between 59 and 62 days															
13 SADV11 F1	127	3	2	4.05	3	3.27	6	2.62	3	2.19	7	2.70	2	2.18	3
14 SADV12 F1	124	5	4	4.14	1	3.76	1	2.31	4	2.93	1	2.72	1	1.91	6
17 MATINDIRI#	95	13	7	3.73	6	2.21	23	1.97	9	2.58	2	2.60	5	0.99	23
2 GRACE (EWF-2)#	98	13	6	3.56	8	2.87	14	1.61	19	1.74	22	2.49	12	1.14	19
24 LOCAL CHECK 3	102	14	8	3.56	8	3.25	7	2.24	8	1.86	17	2.51	10	2.21	1
23 LOCAL CHECK 2	90	15	7	3.42	14	2.74	17	1.76	14	1.58	23	2.68	4	1.49	13
22 LOCAL CHECK 1	91	16	8	3.54	10	3.56	3	1.74	14	1.84	18	2.70	3	1.55	11
19 KITO-ST#	88	16	6	2.75	24	2.63	20	1.61	20	1.82	20	2.32	21	1.10	21
OPVs with anthesis date between 63 and 64 days															
21 SYNTHETIC-NUE-SR-#	103	8	7	3.45	12	1.69	24	2.01	8	2.34	5	2.52	9	1.65	8
20 SYNTHETIC-DR-SR-#	102	10	7	4.09	2	2.65	18	1.79	13	2.00	14	2.58	6	1.08	22
Mean	100	12	6	3.46	12	2.97	13	1.91	12	2.06	12	2.48	13	1.53	13
LSD (0.05)				0.93		0.68		0.30		0.89		0.27		0.41	
Min	88	3	2	2.75	1	1.69	1	1.50	3	1.45	1	2.09	1	0.94	1
Max	127	17	8	4.14	24	3.76	24	2.62	21	2.93	24	2.72	24	2.21	24

EPOP99: Results of early and intermediate maturing OPVs from CIMMYT, Malawi, Tanzania, and South Africa across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Drought				Low N	
	Rel GY	Rank	ASI	EPP	LR	Senesc	ASI	EPP

% Avg Sidev d 1-5 1-10 d 1-10

OPVs with anthesis date between 54 and 57 days

5	Z97EWA-F2 Z97EWB-F2	101	12	5	3.0	0.93	3.4	7.2	5.3	0.90	7.1
10	[EARLY-MID-1 KATUMANI-SR]#	98	13	6	3.6	0.83	3.5	6.8	5.1	0.83	7.0
3	Z97EWA-F2#	94	15	6	1.9	0.84	3.7	7.2	4.0	0.87	7.2
4	Z97EWB-F2#	92	15	6	3.5	0.88	3.9	7.1	6.3	0.84	7.2

OPVs with anthesis date between 57 and 59 days

12	ZM421 = SADVE F1	119	5	3	2.2	0.88	3.0	6.4	2.4	0.93	6.4
6	ZM303 = [EARLY-MID-2 PL16-SR]#	105	10	5	4.2	0.83	3.5	6.7	3.3	0.92	6.6
8	[TEWD-SRDRTOLSYN NAW5867 P30-SR(S2#)]##	100	12	5	3.0	0.89	3.5	6.9	3.2	0.90	6.8
1	ZM301	103	12	5	2.2	0.84	2.8	6.4	4.4	0.90	6.9
15	DTP1-W C6 SEL. PRECOZ F3	104	14	7	1.9	0.91	3.6	6.7	3.0	0.96	6.7
11	[VAR TEMP HILANDPOI]##	95	14	6	3.0	0.79	3.6	6.8	3.5	0.89	7.0
9	[EV7992 POOL16-SR]##S1SEL-F3	95	14	5	2.8	0.87	3.9	7.3	3.3	0.90	6.7
18	KATUMANI-ST#	96	16	6	3.9	0.75	3.7	6.7	3.9	0.86	6.8
16	POOL 16 BNSEQ C1 F2	88	17	6	2.5	0.86	3.9	7.5	3.9	0.91	6.9
7	[DMRESR-W]##(EARLY SEL)#	90	17	5	2.7	0.82	3.8	6.9	3.3	0.88	6.9

OPVs with anthesis date between 59 and 62 days

13	ZM521 = { SADV11 F1	127	3	2	4.1	0.89	3.1	5.8	2.9	0.94	5.6
14	{ SADV12 F1	124	5	4	2.4	0.85	3.5	6.3	1.8	0.96	6.1
17	MATINDIRI#	95	13	7	4.3	0.78	3.8	6.7	3.7	0.91	6.8
2	GRACE (EWF-2)#	98	13	6	3.0	0.77	3.6	6.5	4.6	0.86	6.8
24	LOCAL CHECK 3	102	14	8	2.8	0.76	4.0	7.1	3.8	0.90	6.3
23	LOCAL CHECK 2	90	15	7	3.5	0.74	4.1	6.7	3.2	0.86	6.3
22	LOCAL CHECK 1	91	16	8	5.9	0.84	3.5	6.0	3.7	0.93	6.9
19	KITO-ST#	88	16	6	2.5	0.74	4.2	7.6	4.1	0.86	6.5

OPVs with anthesis date between 63 and 64 days

21	SYNTHETIC-NUE-SR#	103	8	7	4.3	0.75	3.5	6.2	3.3	0.93	6.3
20	SYNTHETIC-DR-SR#	102	10	7	2.8	0.74	3.3	5.4	4.0	0.87	6.3

Mean		100	12	6	3.2	0.82	3.6	6.7	3.8	0.90	6.7
LSD (0.05)					2.0	0.09	0.6	0.5	1.6	0.06	0.5
Min		88	3	2	1.9	0.74	2.8	5.4	1.8	0.83	5.6
Max		127	17	8	5.9	0.93	4.2	7.6	6.3	0.96	7.2

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			Grain yield - Lowlands						Grain yield - Midaltitudes eastern Africa											
	Rel GY	Rank	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank				
	%	Avg	Stdev	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank	U/ha	Rank				
OPVs with anthesis date between 67 and 70 days																					
13 ZM621 = SADVL F1	125	4	4	3.35	2	2.81	1	4.47	3	2.97	2	6.45	4	8.95	1	6.45	3	5.07	9	5.32	3
11 LATA1F1/LATBC1 F1	112	7	4	2.93	7	2.45	5	3.62	11	2.71	4	6.35	5	8.03	7	6.99	1	5.69	2	4.71	11
14 MASIKA#	113	8	5	3.23	3	2.61	2	4.26	5	2.82	3	5.96	10	7.01	16	6.24	6	6.13	1	4.45	15
12 DRACOSYNF1/DRBCOSYN F1	113	8	5	3.25	5	2.53	9	4.36	4	3.08	1	6.05	8	7.79	11	6.69	2	5.11	8	4.59	12
1 Z97SYNGLS(A)-F2#	104	10	6	3.28	3	2.69	3	4.58	1	2.65	5	5.53	12	7.59	13	4.50	22	5.11	7	4.93	6
6 [LUXP-SEQ6]C1 F2	105	11	6	2.88	9	2.42	6	3.88	8	2.33	12	5.57	13	8.02	8	5.58	12	4.12	20	4.58	13
7 [TSEQZM]C2 F2	103	11	6	2.71	11	2.40	7	3.33	18	2.39	9	5.69	12	8.11	6	6.41	4	4.45	16	3.82	21
19 CHITIBU #	99	12	6	2.92	9	2.16	15	3.98	7	2.61	6	5.68	12	8.21	5	5.69	11	4.49	15	4.31	16
10 INTAC1F1/INTBC1 F1	100	13	6	2.71	13	2.08	18	3.50	14	2.56	7	5.87	10	7.90	10	5.36	15	5.48	5	4.72	10
8 [ZM601DEN]C3 F2	100	13	6	2.42	19	2.13	16	2.94	22	2.20	18	5.55	12	6.83	19	5.82	9	4.64	13	4.90	7
16 KAKHOMERA#	97	14	7	2.58	14	1.73	22	3.61	12	2.41	8	5.08	16	6.31	23	4.97	17	5.17	6	3.86	19
18 SUNDWE#	95	15	6	2.66	15	2.27	12	3.52	13	2.18	19	5.31	14	7.17	15	4.86	18	3.84	22	5.38	2
4 [MID-ALT-QPM]C2 F2#	94	15	6	2.47	17	1.89	20	3.25	19	2.27	13	4.51	22	6.39	22	4.60	21	3.23	24	3.82	20
24 LOCAL CHECK 2	91	16	7	2.71	12	2.36	8	3.38	17	2.38	10	5.22	14	8.24	4	6.13	7	3.35	23	3.17	23
21 TMV-1#	91	17	4	2.55	17	2.24	14	3.21	20	2.22	17	5.01	17	6.51	20	4.64	19	4.65	12	4.22	17
5 [WHITE QPM]C2 F2#	87	17	6	2.24	21	1.92	19	2.85	23	1.96	22	4.86	19	6.46	21	5.51	14	4.39	17	3.09	24
15 MCHOSANJALA#	80	20	4	2.34	21	1.83	21	3.11	21	2.07	21	4.43	21	5.59	24	3.95	23	4.24	19	3.92	18
OPVs with anthesis date between 70 and 73 days																					
2 Z97SYNGLS(B)-F2#	108	9	7	3.14	6	2.50	4	4.55	2	2.36	11	5.63	11	7.00	17	5.56	13	5.00	10	4.97	5
22 TASEQ#	107	10	7	2.58	16	2.33	10	3.47	15	1.93	23	6.23	7	8.71	2	6.33	5	4.38	18	5.50	1
9 [SUWAN1-SR/COMPE1]C1#	105	10	7	2.65	16	2.32	11	3.45	16	2.16	20	5.97	8	7.70	12	5.71	10	5.59	3	4.87	8
3 AC969A-SR(Best FS)] F2	98	13	8	2.57	15	1.43	24	4.04	6	2.25	15	6.09	7	8.55	3	5.12	16	5.58	4	5.09	4
23 LOCAL CHECK 1	94	15	6	2.33	19	2.11	17	2.65	24	2.22	16	5.34	14	7.33	14	6.11	8	4.68	11	3.24	22
17 KAFUMBA#	91	16	5	2.75	12	2.26	13	3.74	10	2.26	14	5.07	17	6.97	18	4.62	20	3.90	21	4.79	9
20 STAHA#	89	16	5	2.42	19	1.62	23	3.76	9	1.87	24	5.20	15	7.93	9	3.92	24	4.51	14	4.46	14
Mean	100	12	6	2.74	13	2.19	13	3.65	13	2.37	13	5.53	13	7.47	13	5.49	13	4.70	13	4.45	13
LSD (0.05)				0.42		0.58		0.72		0.45		0.69		1.31		1.43		1.43		1.28	
Min.	80	4	4	2.24	2	1.43	1	2.65	1	1.87	1	4.43	4	5.59	1	3.92	1	3.23	1	3.09	1
Max	125	20	8	3.35	21	2.61	24	4.58	24	3.08	24	6.45	22	8.95	24	6.99	24	6.13	24	5.50	24

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99.

Entry	Pedigree	Across		Grain yield - Midaltitudes southern Africa									
		Rel GY	Rank	Across	Groytown RSA	Mt. Makulu Zam	ART Farm Zim	Glendale Zim	Ruwa Zim	t/ha	Rank	t/ha	Rank

% Avg Sidev t/ha Rank t/ha Rank t/ha Rank t/ha Rank t/ha Rank t/ha Rank t/ha Rank

OPVs with anthesis date between 67 and 70 days

13	ZM621 = SADVL F1	125	4	4	7.95	1	6.69	1	9.79	3	6.61	1	7.58	1	9.10	1
11	LATAC1F1/LATBC1 F1	112	7	4	6.74	8	5.85	7	9.96	2	4.42	12	7.04	4	6.47	13
14	MASIKAF#	113	8	5	6.11	12	5.23	11	8.16	14	4.20	13	6.20	9	6.75	11
12	DRAC0SYNF1/DRBC0SYN F1	113	8	5	6.48	9	5.86	6	8.09	15	4.11	14	7.38	2	6.98	9
1	Z97SYNGLS(A)-F2#	104	10	6	6.44	10	4.90	15	9.77	5	5.10	6	5.10	18	7.34	8
6	[TUXP SEQC6]C1 F2	105	11	6	6.60	9	6.61	2	9.39	7	5.47	5	4.16	24	7.36	7
7	[TSEQZIM]C2 F2	103	11	6	6.58	9	5.79	9	9.14	8	5.00	7	6.09	10	6.87	10
19	CHITIBU #	99	12	6	6.21	12	4.86	16	10.24	1	4.09	16	5.92	11	5.94	17
10	INTAC1F1/INTBC1 F1	100	13	6	5.91	15	5.55	10	7.93	17	3.77	21	6.50	5	5.79	20
8	[ZM601DEN]C3 F2	100	13	6	5.86	13	5.80	8	6.46	24	4.43	11	6.44	6	6.15	15
16	KAKHOMERA#	97	14	7	5.31	19	4.84	17	7.56	20	4.07	17	4.20	23	5.88	18
18	SUNDWE#	95	15	6	6.01	13	3.88	22	9.11	9	4.78	9	6.27	8	6.02	16
4	[MID.AL.T.QPM]C2 F2#	94	15	6	5.99	13	6.01	3	8.87	10	4.11	14	5.30	16	5.65	21
24	LOCAL CHECK 2	91	16	7	5.27	19	3.20	24	7.88	19	3.78	20	5.05	19	6.43	14
21	TMV-1#	91	17	4	5.47	18	4.92	14	7.88	18	3.83	19	5.28	17	5.43	22
5	[WHITE QPM]C2 F2#	87	17	6	5.09	19	4.94	13	8.24	12	3.08	23	4.73	21	4.44	24
15	MCHOSANJALA#	80	20	4	5.01	19	4.34	21	8.05	16	2.51	24	5.58	13	4.58	23

OPVs with anthesis date between 70 and 73 days

2	Z97SYNGLS(B)-F2#	108	9	7	7.12	6	5.18	12	9.53	6	5.50	4	7.09	3	8.31	3
22	TASEQ#	107	10	7	6.22	11	5.96	4	6.73	23	4.90	8	5.74	12	7.75	6
9	[SUWAN1-SR/COMPE]C1#	105	10	7	7.28	4	5.95	5	9.77	4	5.91	3	6.29	7	8.47	2
3	AC969A-SR(BestFS)] F2	98	13	8	6.50	11	4.57	20	8.18	13	6.14	2	5.51	15	8.11	4
23	LOCAL CHECK 1	94	15	6	5.60	17	4.62	19	7.07	22	3.97	18	4.27	22	8.09	5
17	KAFUMBA#	91	16	5	4.93	21	3.46	23	7.25	21	3.30	22	4.78	20	5.87	19
20	STAHA#	89	16	5	5.98	13	4.70	18	8.55	11	4.52	10	5.52	14	6.60	12

Mean

100 12 6 6.11 12 5.15 13 8.48 13 4.48 12 5.75 13 6.68 13

LSD (0.05)

0.60 0.60 2.12 0.95 1.05

Min

80 4 4 4.93 1 3.20 1 6.46 1 2.51 1 4.16 1 4.44 1

Max

125 20 8 7.95 21 6.69 24 10.24 24 6.61 24 7.58 24 9.10 24

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99.

Entry Pedigree	Across		Grain yield - Managed and random drought stress															
	Rel GY	Rank	Across	Mazozo Ang	Goodhope Bot	Pandamat. Bot	Chitala Mal	Morrumb. Moz	Arusha Tan	Chiredzi Zim	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank
%	Avg	Stdev	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank	u/ha	Rank
OPVs with anthesis date between 67 and 70 days																		
13 ZM621 = SADVL F1	125	4	4	4	3.05	1	1.13	7	1.56	9	3.26	3	1.25	8	4.14	1	3.74	2
11 LATA1F1/LATBC1 F1	112	7	4	6	1.97	12	1.09	11	1.56	9	3.56	2	1.50	2	3.41	4	3.46	5
14 MASIKA-#	113	8	5	7	2.69	4	1.08	12	1.93	3	3.21	4	1.05	14	3.00	11	3.59	4
12 DRACOSYNF1/DRBCOSYN F1	113	8	5	7	1.77	16	1.48	2	2.39	1	3.11	6	1.49	3	3.06	9	3.17	11
1 Z97SYNGLS(A)-F2-#	104	10	6	12	1.94	13	1.03	13	1.31	20	2.65	13	0.88	18	3.11	7	3.64	3
6 [TUXP-SEQ6]C1 F2	105	11	6	12	2.98	2	0.83	21	1.50	12	2.61	15	0.94	17	3.23	6	3.01	13
7 [TSEQZIM]C2 F2	103	11	6	13	2.53	6	1.16	6	2.04	2	2.44	20	0.85	19	2.33	22	3.01	14
19 CHITIBU-#	99	12	6	12	2.15	11	0.96	16	1.66	6	3.02	8	0.60	24	2.93	13	3.25	9
10 INTAC1F1/INTBC1 F1	100	13	6	11	2.37	8	0.84	20	1.46	14	2.64	14	1.30	7	3.49	3	3.24	10
8 [ZM601DEN]C3 F2	100	13	6	12	2.80	3	1.00	14	1.53	11	2.23	23	1.21	10	3.07	8	2.85	18
16 KAKHOMERA-#	97	14	7	11	2.39	7	1.26	4	1.78	4	2.44	19	1.31	6	2.98	12	2.50	23
18 SUNDWE-#	95	15	6	14	2.22	10	0.97	15	1.50	13	3.11	5	0.83	21	2.36	21	2.98	15
4 [MID.ALT.QPM]C2 F2-#	94	15	6	14	1.49	19	0.95	17	1.12	24	2.88	9	1.46	4	2.82	15	3.25	8
24 LOCAL CHECK 2	91	16	7	17	0.69	24	1.62	1	1.35	18	2.39	22	1.10	13	2.74	17	2.02	24
21 TMV-1-#	91	17	4	14	1.62	15	1.10	9	1.58	8	2.50	17	1.10	12	2.71	18	2.69	17
5 [WHITE QPM]C2 F2-#	87	17	6	17	1.63	18	1.09	10	1.31	21	3.02	7	1.05	15	2.04	24	2.63	21
15 MCHOSANJALA-#	80	20	4	19	1.31	20	0.71	23	1.22	22	2.80	12	0.73	23	2.50	20	2.95	16
OPVs with anthesis date between 70 and 73 days																		
2 Z97SYNGLS(B)-F2-#	108	9	7	11	2.55	5	1.27	3	1.21	23	3.59	1	1.21	11	2.19	23	3.11	12
22 TASEQ-#	107	10	7	11	1.75	17	1.11	8	1.77	5	2.45	18	1.74	1	2.53	19	3.26	7
9 [SUWAN1-SR/COMPE1]C1-#	105	10	7	9	2.27	9	0.84	19	1.44	15	2.85	10	1.39	5	3.33	5	4.13	1
3 AC969A-SR[Best FS]] F2	98	13	8	17	1.15	21	0.81	22	1.34	19	1.89	24	0.77	22	3.71	2	3.27	6
23 LOCAL CHECK 1	94	15	6	14	0.86	23	1.24	5	1.66	6	2.42	21	1.23	9	2.77	16	2.80	19
17 KAFUMBA-#	91	16	5	16	1.82	14	0.86	18	1.43	16	2.81	11	0.84	20	3.02	10	2.52	22
20 STAHA-#	89	16	5	18	0.89	22	0.59	24	1.43	17	2.58	16	1.02	16	2.84	14	2.75	20
173	18	5	17	19	3.05	24	1.62	24	2.39	24	3.59	24	1.74	24	4.14	24	4.13	24
Mean	100	12	6	12	1.96	13	1.04	13	1.54	12	2.77	13	1.12	13	2.93	13	3.08	13
LSD (0.05)					0.28		0.47		0.63		0.76		0.52		0.89		0.75	
Min	80	4	4	4	0.69	1	0.59	1	1.12	1	1.89	1	0.60	1	2.04	1	2.02	1
Max	125	20	8	19	3.05	24	1.62	24	2.39	24	3.59	24	1.74	24	4.14	24	4.13	24

ILPOP99: Results of intermediate and late maturing OPVs from CIMMYT, Malawi, and Tanzania across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			Grain yield - managed N stress				Drought stress			N stress							
	Ref GY	Rank		Across	Mazozo Ang	Sussund. Moz	CIMMYT Zim	DR&SS Zim	ASI	EPP	Senesc	ASI	Senesc					
%	Avg	Stdev	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	1-10	d	1-10					
OPVs with anthesis date between 67 and 70 days																		
13 ZM621 = SADVL F1	125	4	4	2.72	5	2.82	3	2.62	15	3.52	1	1.92	2	4.6	0.80	6.3	3.3	5.5
11 LATA1F1/LATBC1 F1	112	7	4	2.37	7	2.75	4	2.80	8	2.34	10	1.57	6	2.4	0.78	6.7	3.9	5.6
14 MASIKA #	113	8	5	2.62	5	3.07	1	2.84	5	2.23	13	2.34	1	4.7	0.76	6.8	4.5	5.5
12 DRAC0SYNF1/DRBC0SYN F1	113	8	5	2.34	11	2.67	6	2.66	14	2.88	4	1.13	19	5.9	0.75	6.6	5.1	5.7
1 Z97SYNGLS(A)-F2-#	104	10	6	2.33	10	2.52	9	2.79	9	2.67	7	1.31	13	3.7	0.66	6.7	4.6	5.7
6 [TUXP-SEQC6]C1 F2	105	11	6	2.32	11	2.36	10	2.54	22	2.81	5	1.57	7	2.7	0.72	6.4	6.1	5.7
7 [TSE0ZIM]C2 F2	103	11	6	2.13	11	1.95	16	2.68	12	2.30	11	1.61	5	4.6	0.72	6.3	3.1	5.3
19 CHITBU #	99	12	6	2.03	13	2.14	14	2.99	1	1.80	21	1.19	17	4.6	0.62	6.6	5.3	6.1
10 INTAC1F1/INTBC1 F1	100	13	6	2.01	17	2.26	13	2.55	21	2.19	14	1.04	20	3.4	0.72	6.6	5.9	5.8
8 [ZM601DENIC3 F2	100	13	6	2.18	11	1.80	22	2.95	2	2.69	6	1.27	14	2.8	0.75	6.4	4.0	5.6
16 KAKHOMERA #	97	14	7	2.16	14	2.54	8	2.50	23	2.43	8	1.19	16	4.7	0.87	6.4	5.9	6.0
18 SUNDWE #	95	15	6	1.89	18	1.85	21	2.72	11	1.99	18	0.99	21	6.1	0.69	6.7	6.0	6.0
4 [MID.ALT.QPM]C2 F2-#	94	15	6	2.22	12	2.90	2	2.62	17	2.12	15	1.24	15	6.3	0.79	6.2	4.1	5.7
24 LOCAL CHECK 2	91	16	7	2.00	13	1.92	18	2.88	3	1.70	22	1.50	9	1.7	0.80	7.0	5.3	5.9
21 TMV-1 #	91	17	4	1.84	20	1.89	20	2.60	18	1.90	20	0.95	22	2.5	0.77	6.7	5.6	6.2
5 [WHITE QPM]C2 F2-#	87	17	6	1.99	13	2.63	7	2.84	4	1.31	23	1.16	18	5.5	0.72	6.0	6.8	6.3
15 MCHOSANUALA #	80	20	4	1.68	20	2.14	15	2.62	16	1.20	24	0.77	24	4.6	0.61	6.7	9.4	5.9
OPVs with anthesis date between 70 and 73 days																		
2 Z97SYNGLS(B)-F2-#	108	9	7	2.09	12	1.09	24	2.60	19	2.90	3	1.76	3	3.9	0.72	6.1	6.7	5.5
22 TASEQ-#	107	10	7	2.53	6	2.75	5	2.83	6	3.11	2	1.42	10	0.7	0.79	6.6	2.8	5.5
9 [SUWAN1-SR/COMPE1]C1-#	105	10	7	1.86	19	1.78	23	2.66	13	2.10	17	0.90	23	5.4	0.73	6.5	4.7	6.0
3 AC969A-SR(Best FS)] F2	98	13	8	2.20	13	2.36	11	2.50	24	2.43	8	1.52	8	3.3	0.58	7.1	5.4	5.4
23 LOCAL CHECK 1	94	15	6	2.14	11	1.94	17	2.74	10	2.23	12	1.66	4	2.6	0.66	6.0	3.8	5.9
17 KAFUMBA #	91	16	5	2.13	12	2.35	12	2.83	7	1.93	19	1.40	11	5.0	0.60	6.3	8.0	6.1
20 STAHA #	89	16	5	2.00	17	1.91	19	2.56	20	2.12	15	1.39	12	4.2	0.61	7.3	3.9	5.8
Mean	100	12	6	2.16	12	2.27	13	2.71	13	2.29	12	1.37	13	4.00	0.72	6.5	5.2	5.8
LSD (0.05)				0.38		1.15		0.51		0.67		0.50		2.0	0.11	0.5	2.5	0.4
Min	80	4	4	1.68	5	1.09	1	2.50	1	1.20	1	0.77	1	0.65	0.58	6.0	2.8	5.3
Max	125	20	8	2.72	20	3.07	24	2.99	24	3.52	24	2.34	24	6.35	0.87	7.3	9.4	6.3

ElHYB99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry	Pedigree	Across			Grain yield - Lowlands				Grain yield - Midaltitudes eastern Africa					
		RtI GY		Rank	Across		Inoga Tan		Across		Bako Eth		Arusha Tan	
		%	Avg	Stdev	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank
Hybrids with anthesis data between 61 and 65 days														
30	953WH237	100	25	11	3.68	37	3.68	37	6.49	32	7.44	45	5.54	18
5	[COMPE2/P43-SR]/COMPE2] FS#-20-S7/Z97EWB	94	31	13	2.91	50	2.91	50	6.41	36	7.49	44	5.33	27
8	CML205/Z97EWB	90	33	10	3.58	40	3.58	40	5.79	46	7.42	46	4.16	46
9	CML205/ZM301	90	33	11	4.05	32	4.05	32	6.55	38	8.69	34	4.41	41
43	SC401	82	36	12	4.46	21	4.46	21	6.38	37	7.70	41	5.06	33
Hybrids with anthesis data between 65 and 68 days														
4	[COMPE2/P43-SR]/COMPE2] FS#-20-S7/CML390	120	13	11	5.24	6	5.24	6	8.52	7	10.37	8	6.66	5
31	ZS255	122	16	13	5.10	9	5.10	9	8.41	16	8.82	31	8.01	1
12	G16BNSEQC0F118-1-1-B-B/CML202	118	16	11	4.62	15	4.62	15	6.83	37	8.58	35	4.69	38
49	SC515	105	20	13	4.66	14	4.66	14	8.19	9	10.24	10	6.15	8
13	G16SeqC1F47-2-1-2-1-B-B-B/CML202	113	20	13	4.67	13	4.67	13	6.80	29	8.13	37	5.47	21
44	SC403	111	21	15	5.18	7	5.18	7	7.76	14	9.75	13	5.78	14
46	SC407	105	22	14	4.11	31	4.11	31	7.80	15	9.10	22	6.49	7
6	[COMPE2/P43-SR]/COMPE2] FS#-20-S7/Z97EWA	102	23	13	3.62	38	3.62	38	7.42	20	9.39	17	5.46	23
45	SC405	102	23	12	3.90	34	3.90	34	7.55	16	9.28	19	5.82	13
22	G16BNSEQC0F228-2-3-B-B-B/CML202	107	23	14	3.30	48	3.30	48	6.15	42	7.90	40	4.40	43
36	PAN 6321	102	24	12	4.40	24	4.40	24	7.67	20	10.25	9	5.10	31
47	SC501	95	26	13	4.46	22	4.46	22	7.49	20	9.58	14	5.41	25
1	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML205	100	28	11	4.61	18	4.61	18	6.80	33	8.36	36	5.24	29
37	PAN 6363	95	29	15	3.38	47	3.38	47	7.12	28	8.81	32	5.42	24
32	983WH102	93	30	12	3.39	46	3.39	46	8.11	16	8.82	30	7.40	2
10	CML205/Z97EWA	94	31	11	3.56	41	3.56	41	7.34	20	8.93	24	5.76	15
40	CG4141	89	32	16	3.79	35	3.79	35	6.40	32	7.12	48	5.69	16
42	R201	85	34	16	4.22	29	4.22	29	7.12	24	8.12	38	6.11	9
Hybrids with anthesis data between 68 and 71 days														
2	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML390	114	16	11	5.76	1	5.76	1	7.87	16	10.40	6	5.33	26
14	[COMPE2/P43-SR]/COMPE2] FS#-20-1-1-B-1-B-B/CML202	113	16	10	4.92	11	4.92	11	7.85	16	10.23	11	5.47	20
16	SPLC7F182-1-2-2-B-B-B/CML202	111	19	15	5.03	10	5.03	10	8.44	17	11.79	2	5.08	32
48	SC513	112	19	11	4.61	17	4.61	17	7.05	29	9.04	23	5.06	35
20	INTA-191-2-1-2-B-B-B/CML202	107	20	13	4.37	25	4.37	25	7.93	13	10.37	7	5.49	19
21	LATA-26-1-1-2-1-B-B/CML202	108	21	17	5.33	3	5.33	3	6.88	30	9.35	18	4.41	42
11	[[K64R/PL16-SR]-39-1]([K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	105	22	11	4.03	33	4.03	33	6.21	40	7.61	42	4.81	37
23	G16SeqC1F47-2-1-2-1-B-B-B/CML206	109	24	12	4.29	27	4.29	27	6.28	27	5.49	50	7.06	3
27	INTB-91-1-2-2-1-B-B/CML206	103	24	12	4.45	23	4.45	23	6.74	33	9.14	21	4.34	44
39	PAN 6561	97	25	15	4.23	28	4.23	28	7.35	20	8.86	28	5.83	12
18	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-1-1-B-1-B/CML202	102	26	15	5.49	2	5.49	2	6.81	35	8.71	33	4.91	36
24	DTP1WC6F181-1-#-3-1-1-B-B-B/CML206	92	29	11	4.34	26	4.34	26	7.36	20	8.82	29	5.90	10
35	PAN 6235	93	29	16	5.26	5	5.26	5	7.16	25	8.86	27	5.46	22
50	LOCAL CHECK	93	30	14	3.69	36	3.69	36	7.12	27	9.57	15	4.66	39
41	CG4585	88	32	13	4.60	19	4.60	19	6.21	38	8.89	26	3.53	49
25	[[K64R/P30-SR]-82-2]([K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	87	35	11	3.50	44	3.50	44	4.55	50	5.95	49	3.14	50
33	PAN 473	85	35	9	3.48	45	3.48	45	7.13	27	9.21	20	5.06	33
34	PAN 6043	83	36	13	3.51	43	3.51	43	7.03	25	7.54	43	6.51	6
38	PAN 6549	75	41	13	3.02	49	3.02	49	6.09	42	7.94	39	4.25	45
Hybrids with anthesis data between 71 and 73 days														
17	TS6C1F238-1-3-3-1-2-#-B-B-B/CML202	117	15	15	5.32	4	5.32	4	8.68	5	10.57	5	6.78	4
15	IKENE8149SR-68-2-BBB-6-BB-B-B-B/CML202	113	17	14	5.15	8	5.15	8	7.49	17	9.39	16	5.59	17
19	[EV7992#EV8449-SR]C1F2-334-1(OSU8)-10-7(I)-X-X-X-2-B-B-1-B/CML202	107	19	13	4.62	16	4.62	16	8.24	21	11.92	1	4.57	40
3	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML395	103	23	14	4.50	20	4.50	20	7.62	20	9.98	12	5.27	28
26	TS6C1F238-1-3-3-1-2-#-B-B-B/CML206	101	24	15	4.80	12	4.80	12	8.11	17	11.06	3	5.15	30
7	[NAW 5867/P49-SR(S2#)]([NAW 5867] FS#-48-S7/CML216	99	25	18	3.53	42	3.53	42	8.36	8	10.85	4	5.88	11
28	ZM605 C2F1-17-1-B-1-B/CML206	89	31	17	4.14	30	4.14	30	6.45	37	8.91	25	3.98	48
29	[[TUXPSEQ]C1F2/P49-SR]F2-103-2-2-3-B/CML206	80	37	12	3.60	39	3.60	39	5.64	47	7.22	47	4.06	47
Mean		100	25	13	4.29	26	4.29	26	7.15	25	8.96	26	5.34	25
LSD (0.05)					1.16		1.16		1.71		2.39		2.42	
Min		75	13	9	2.91	1	2.91	1	4.55	5	5.49	1	3.14	1
Max		122	41	18	5.76	50	5.76	50	8.88	50	11.92	50	8.01	50

ElHYB99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry	Pedigree	Across			Grain yield - Midaltitudes southern Africa									
		Rel GY	Rank	Stdev	Across		Greytown RSA		Likonde Tan		ART Farm Zim		Ruwa Zim	
		%	Avg	Stdev	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank
Hybrids with anthesis date between 61 and 65 days														
30	953WH237	100	25	11	5.22	34	3.00	38	6.89	36	5.04	37	5.95	23
5	[COMPE2/P43-SR//COMPE2] FS#-20-S7/Z97EWB	94	31	13	5.71	26	3.87	30	8.29	15	5.28	29	5.39	30
8	CML205/Z97EWB	90	33	10	5.76	26	5.02	10	8.09	20	4.72	39	5.22	33
9	CML205/ZM301	90	33	11	5.97	24	3.96	29	7.83	22	5.23	31	6.86	13
43	SC401	82	36	12	3.46	48	2.13	47	5.70	47	2.67	50	3.33	47
Hybrids with anthesis date between 65 and 69 days														
4	[COMPE2/P43-SR//COMPE2] FS#-20-S7/CML390	120	13	11	7.61	6	4.98	11	9.56	7	7.83	4	8.07	2
31	ZS255	122	16	13	5.61	28	4.40	23	6.27	40	6.73	9	5.02	38
12	G16BNSEQC0F118-1-1-B-B/CML202	118	16	11	6.72	15	6.57	1	8.38	14	5.40	24	6.52	19
49	SC515	105	20	13	6.52	19	2.11	48	9.77	5	7.43	6	6.77	15
13	G16SeqC1F47-2-1-2-1-B-B/CML202	113	20	13	5.32	31	2.58	43	7.20	32	5.65	21	5.83	26
44	SC403	111	21	15	5.00	36	2.45	45	7.18	33	5.25	30	5.12	36
46	SC407	105	22	14	5.68	23	5.04	9	5.01	50	5.93	16	6.72	16
6	[COMPE2/P43-SR//COMPE2] FS#-20-S7/Z97EWA	102	23	13	5.87	22	5.05	8	8.60	10	4.21	43	5.60	28
45	SC405	102	23	12	5.16	32	3.52	33	7.73	24	5.32	27	4.09	44
22	G16BNSEQC0F228-2-3-B-B/CML202	107	23	14	6.36	18	4.76	16	8.66	9	5.20	32	6.83	14
36	PAN 6321	102	24	12	5.50	28	4.63	18	6.17	42	5.35	26	5.82	27
47	SC501	95	26	13	4.70	36	2.49	44	6.48	38	5.82	18	4.03	45
1	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML205	100	28	11	5.36	31	4.78	15	7.15	34	5.05	36	4.46	40
37	PAN 6363	95	29	15	4.77	36	4.89	13	6.08	43	3.87	45	4.23	42
32	983WH102	93	30	12	5.44	29	2.64	42	7.48	28	6.30	13	5.33	32
10	CML205/Z97EWA	94	31	11	5.24	32	3.70	32	6.44	39	5.74	20	5.09	37
40	CG4141	89	32	16	3.81	45	3.37	35	5.42	48	3.47	47	2.99	50
42	R201	85	34	16	3.60	48	2.02	49	5.75	45	3.46	48	3.17	48
Hybrids with anthesis date between 68 and 71 days														
2	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML390	114	16	11	6.76	13	5.85	2	8.26	17	6.44	11	6.49	21
14	[COMPE2/P43-SR//COMPE2] FS#-20-1-1-B-1-B-B/CML202	113	16	10	7.12	8	5.34	4	8.58	12	7.04	8	7.53	6
16	SPLC7F182-1-2-2-B-B-B/CML202	111	19	15	6.47	19	4.64	17	8.29	16	4.96	38	7.99	3
48	SC513	112	19	11	6.40	20	4.34	24	6.22	41	7.79	5	7.23	10
20	INTA-191-2-1-2-B-B-B/CML202	107	20	13	7.51	9	4.25	25	9.63	6	8.08	3	8.08	1
21	LATA-26-1-1-2-1-B-B/CML202	108	21	17	7.21	12	5.12	7	6.96	35	8.87	2	7.90	5
11	[[K64R/PL16-SR]-39-1]([K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	105	22	11	6.05	22	4.56	20	7.47	29	5.47	23	6.69	17
23	G16SeqC1F47-2-1-2-1-B-B-B/CML206	109	24	12	5.80	27	4.53	21	7.63	27	5.11	34	5.95	24
27	INTB-91-1-2-2-1-B-B/CML206	103	24	12	5.58	29	2.87	40	7.71	25	5.31	28	6.44	22
39	PAN 6561	97	25	15	6.22	18	5.24	5	8.25	18	6.28	14	5.14	35
18	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-1-1-B-1-	102	26	15	5.29	32	3.13	36	8.03	21	4.59	42	5.43	29
24	DTP1WC6F181-1-#-3-1-1-B-B-B/CML206	92	29	11	5.60	28	2.74	41	7.46	30	5.61	22	6.58	18
35	PAN 6235	93	29	16	4.62	39	2.98	39	5.24	49	5.06	35	5.19	34
50	LOCAL CHECK	93	30	14	5.08	32	5.38	3	7.39	31	3.39	49	4.16	43
41	CG4585	88	32	13	4.90	36	3.48	34	7.77	23	3.97	44	4.40	41
25	[[K64R/P30-SR]-82-2]([K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	87	35	11	5.49	29	4.88	14	6.57	37	5.17	33	5.35	31
33	PAN 473	85	35	9	5.47	32	4.49	22	7.66	26	4.72	41	4.79	39
34	PAN 6043	83	36	13	4.59	39	4.02	27	5.76	44	4.72	40	3.85	46
38	PAN 6549	75	41	13	4.43	37	5.13	6	5.70	46	3.82	46	3.05	49
Hybrids with anthesis date between 71 and 73 days														
17	TS6C1F238-1-3-3-1-2-#-B-B-B/CML202	117	15	15	7.08	13	3.83	31	10.85	2	6.34	12	7.31	8
15	IKENE8149SR-68-2-BBB-6-BB-B-B-B/CML202	113	17	14	6.76	13	4.62	19	8.59	11	5.83	17	7.98	4
19	[EV7992#EV8449-SR]C1F2-334-1(OSU8)-10-7(1)-X-X-X-2-B-B-1-B/CML202	107	19	13	6.82	13	4.22	28	9.17	8	6.50	10	7.29	9
3	[[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML395	103	23	14	6.47	19	4.00	28	9.99	4	5.39	25	6.49	20
26	TS6C1F238-1-3-3-1-2-#-B-B-B/CML206	101	24	15	7.02	17	3.03	37	12.28	1	5.78	19	7.00	11
7	[NAW 5867/P49-SR(S2#)]([NAW 5867] FS#-48-S7/CML216	99	25	18	8.15	6	4.94	12	10.19	3	9.97	1	7.51	7
28	ZM605 C2F1-17-1-B-1-B/CML206	89	31	17	6.24	20	2.27	46	8.39	13	7.41	7	6.90	12
29	[[TUXPSEQ]C1F2/P49-SR]F2-103-2-2-3-B/CML206	80	37	12	5.50	27	1.85	50	8.21	19	6.07	15	5.88	25
Mean														
		100	25	13	5.78	26	3.99	26	7.63	26	5.61	26	5.82	26
LSD (0.05)														
					0.84		1.52		2.71		0.94		1.26	
Min														
		75	13	9	3.46	6	1.85	1	5.01	1	2.67	1	2.99	1
Max														
		122	41	18	8.15	48	6.57	50	12.28	50	9.97	50	8.08	50

EIH99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			Grain yield - Managed and random drought									
	Rel GY	Rank		Across		Good Hope Bot		Chitola Mal		Morumb. Moz		Arusha Tan	
		%	Avg	Stdev	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha	Rank	t/ha
Hybrids with anthesis date between 61 and 65 days													
30 953WH237	100	25	11	2.82	14	1.75	7	2.93	11	3.33	12	3.27	25
5 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWB	94	31	13	2.17	35	1.34	28	1.90	45	2.05	45	2.66	44
8 CML205/Z97EWB	90	33	10	2.30	31	1.30	29	2.07	41	2.17	38	3.14	32
9 CML205/ZM301	90	33	11	2.30	33	1.10	35	2.45	28	1.96	47	3.09	34
43 SC401	82	36	12	2.23	31	1.65	10	2.40	30	2.75	21	2.33	46
Hybrids with anthesis date between 65 and 68 days													
4 [COMPE2/P43-SR/COMPE2] FS#-20-S7/CML390	120	13	11	2.52	23	1.97	1	2.31	35	2.71	23	3.44	20
31 ZS255	122	16	13	2.98	13	1.92	2	2.81	15	2.75	20	3.15	31
12 G16BNSEQ0F118-1-1-B-B/CML202	118	16	11	2.91	14	1.44	25	2.87	14	3.85	5	3.93	5
49 SC515	105	20	13	2.54	23	1.51	20	2.36	33	2.64	25	3.16	29
13 G16SeqC1F47-2-1-2-1-B-B-B/CML202	113	20	13	2.80	18	1.53	19	2.58	24	4.13	1	3.66	12
44 SC403	111	21	15	2.84	16	1.88	3	3.56	1	2.35	35	2.89	37
46 SC407	105	22	14	2.50	23	1.75	6	3.15	6	2.52	27	2.79	39
6 [COMPE2/P43-SR/COMPE2] FS#-20-S7/Z97EWA	102	23	13	2.62	19	1.70	9	3.08	7	2.85	17	3.10	33
45 SC405	102	23	12	2.83	14	1.64	11	3.17	5	2.39	33	3.58	16
22 G16BNSEQ0F228-2-3-B-B-B/CML202	107	23	14	2.79	18	1.84	5	2.45	29	3.94	4	3.52	18
36 PAN 6321	102	24	12	2.63	22	1.57	15	2.98	9	2.15	39	3.28	23
47 SC501	95	26	13	2.43	22	1.46	23	2.46	27	3.36	11	3.84	6
1 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML205	100	28	11	2.64	25	0.99	41	2.36	34	2.58	26	3.20	28
37 PAN 6363	95	29	15	2.77	17	1.48	22	2.28	36	2.78	19	3.98	4
32 983WH102	93	30	12	2.22	33	1.41	27	1.70	48	2.08	41	3.42	21
10 CML205/Z97EWA	94	31	11	2.33	31	1.46	24	2.27	38	2.68	24	2.66	43
40 CG4141	89	32	16	2.63	21	1.58	14	3.26	2	2.44	32	2.26	48
42 R201	85	34	16	2.34	27	1.71	8	2.63	21	2.21	37	2.14	49
Hybrids with anthesis date between 68 and 71 days													
2 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML390	114	16	11	2.85	16	1.20	31	2.66	19	3.19	15	3.72	9
14 [COMPE2/P43-SR/COMPE2] FS#-20-1-1-B-1-B-B/CML202	113	16	10	2.75	20	1.48	21	2.57	25	4.04	2	3.84	7
16 SPLC7F182-1-2-2-B-B-B/CML202	111	19	15	2.76	20	0.51	50	2.89	13	3.77	6	3.66	13
48 SC513	112	19	11	2.82	16	1.58	17	2.78	16	3.49	9	3.31	22
20 INTA-191-2-1-2-B-B-B/CML202	107	20	13	2.35	29	1.04	38	2.60	22	3.56	7	2.28	47
21 LATA-26-1-1-2-1-B-B/CML202	108	21	17	2.37	30	0.84	44	2.04	42	3.32	13	4.02	3
11 [[K64R/PL16-SR]-39-1]([K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	105	22	11	2.70	19	0.99	40	3.25	3	3.19	14	3.63	14
23 G16SeqC1F47-2-1-2-1-B-B-B/CML206	109	24	12	2.47	25	1.28	30	2.72	17	2.35	34	3.72	10
27 INTB-91-1-2-2-1-B-B/CML206	103	24	12	2.66	22	1.08	37	2.89	12	2.51	28	3.71	11
39 PAN 6561	97	25	15	2.36	27	1.14	33	2.69	16	2.05	44	3.76	8
18 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1]-8-1-1-B-1-	102	26	15	2.59	28	0.75	46	2.38	31	3.99	3	2.90	36
24 DTP1WC6F181-1-#-3-1-1-B-B-B/CML206	92	29	11	2.05	34	1.02	39	1.94	43	2.51	29	3.48	19
35 PAN 6235	93	29	16	2.64	20	1.84	4	2.50	26	1.60	49	3.23	26
50 LOCAL CHECK	93	30	14	2.19	33	1.09	36	3.20	4	2.07	43	3.22	27
41 CG4585	88	32	13	2.30	29	1.13	34	3.05	8	2.74	22	2.67	42
25 [[K64R/P30-SR]-82-2]([K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	87	35	11	2.12	35	1.58	13	1.90	44	2.08	42	2.71	41
33 PAN 473	85	35	9	2.22	34	1.18	32	2.60	23	2.00	46	3.16	30
34 PAN 6043	83	36	13	2.24	32	1.53	18	2.28	37	2.09	40	2.84	38
38 PAN 6549	75	41	13	1.94	38	1.57	16	2.38	32	1.47	50	2.66	45
Hybrids with anthesis date between 71 and 73 days													
17 TS6C1F238-1-3-3-1-2-#-B-B-B/CML202	117	15	15	2.39	27	1.59	12	2.19	40	3.51	8	3.53	17
15 IKENE8149SR-68-2-BBB-6-BB-B-B-B/CML202	113	17	14	2.67	23	0.57	49	1.87	46	2.48	31	4.44	1
19 [EV7992#EV8449-SR]C1F2-334-1(OSU8)-10-7(I)-X-X-X-2-B-B-1-	107	19	13	2.51	24	0.77	45	2.95	10	2.99	16	3.80	15
3 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1)-8-S7/CML395	103	23	14	2.51	27	0.72	47	2.22	39	3.38	10	4.22	2
26 TS6C1F238-1-3-3-1-2-#-B-B-B/CML206	101	24	15	2.11	32	1.44	28	2.68	20	2.80	18	2.91	35
7 [NAW 5867/P49-SR(S2#)]([NAW 5867] FS#-48-S7/CML216	99	25	18	1.81	38	0.86	43	1.16	50	2.49	30	2.00	50
28 ZM605 C2F1-17-1-B-1-B/CML206	89	31	17	2.04	38	0.66	48	1.17	49	2.93	36	2.73	40
29 [[TUXPSEQ]C1F2/P49-SR]F2-103-2-2-3-B/CML206	80	37	12	1.82	40	0.93	42	1.86	47	1.63	48	3.26	24
Mean	100	25	13	2.47	25	1.33	26	2.51	26	2.73	26	3.23	26
LSD (0.05)				0.47		0.67		1.02		0.94		1.18	
Min	75	13	9	1.81	13	0.51	1	1.16	1	1.47	1	2.00	1
Max	122	41	18	2.98	40	1.97	50	3.98	50	4.13	50	4.44	50

ElHYB99: Results of early and intermediate maturing hybrids from CIMMYT, CARGILL, DR&SS, PANNAR and SEED-CO across eastern and southern Africa, 1998/99.

Entry Pedigree	Across			N stress		Drought			N stress		
	Rel GY	Rank		DR&SS Zim		ASI	EPP	Senesc	ASI	EPP	Senesc
	%	Avg	Stdev	t/ha	Rank	d		1-10	d		1-10
Hybrids with anthesis date between 61 and 65 days											
30 953WH237	100	25	11	1.60	30	0.3	0.92	8.2	5.6	0.92	6.3
5 [COMPE2/P43-SR//COMPE2] FS#-20-S7/Z97EWB	94	31	13	1.50	32	2.1	0.81	8.6	6.7	0.87	6.3
8 CML205/Z97EWB	90	33	10	1.27	38	2.0	0.89	7.4	6.5	0.81	6.6
9 CML205/ZM301	90	33	11	1.32	36	2.4	0.79	7.3	7.2	0.92	6.3
43 SC401	82	36	12	0.92	44	3.0	0.83	6.9	6.8	0.80	6.1
Hybrids with anthesis date between 65 and 68 days											
4 [COMPE2/P43-SR//COMPE2] FS#-20-S7/CML390	120	13	11	2.37	9	1.9	0.82	7.0	5.1	0.94	6.1
31 ZS255	122	16	13	2.60	7	2.1	0.88	7.4	2.8	0.96	5.2
12 G16BNSEQC0F118-1-1-B-B/CML202	118	16	11	2.88	4	2.3	0.92	7.1	3.3	1.00	5.7
49 SC515	105	20	13	1.80	22	2.0	0.71	6.9	4.8	0.86	5.8
13 G16SeqC1F47-2-1-2-1-B-B-B/CML202	113	20	13	3.57	2	2.6	0.91	7.8	3.3	0.98	5.6
44 SC403	111	21	15	1.96	20	2.7	0.91	7.5	4.3	1.00	5.9
46 SC407	105	22	14	1.14	41	2.3	0.81	6.6	4.6	0.87	5.6
6 [COMPE2/P43-SR//COMPE2] FS#-20-S7/Z97EWA	102	23	13	1.80	23	2.2	0.89	7.6	7.9	0.92	6.4
45 SC405	102	23	12	1.28	37	2.4	0.78	6.6	6.5	0.85	5.5
22 G16BNSEQC0F228-2-3-B-B-B/CML202	107	23	14	2.16	13	2.4	1.00	7.2	5.0	0.98	5.5
36 PAN 6321	102	24	12	1.23	40	1.7	0.85	7.2	5.0	0.90	6.2
47 SC501	95	26	13	1.47	34	2.1	0.73	7.8	4.3	0.94	5.8
1 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1]-8-S7/CML205	100	28	11	2.03	16	2.7	0.89	7.0	4.8	1.00	6.1
37 PAN 6363	95	29	15	0.78	48	1.9	0.97	6.9	4.9	0.94	6.0
32 983WH102	93	30	12	1.39	35	3.5	0.81	7.5	4.9	1.00	5.6
10 CML205/Z97EWA	94	31	11	2.36	10	2.2	0.89	8.5	5.3	0.98	6.1
40 CG4141	89	32	16	1.13	42	1.6	0.88	7.1	4.8	0.96	6.2
42 R201	85	34	16	1.25	39	1.4	0.76	7.1	4.0	0.96	5.8
Hybrids with anthesis date between 68 and 71 days											
2 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1]-8-S7/CML390	114	16	11	2.29	11	1.4	0.81	7.4	4.2	1.06	5.4
14 [COMPE2/P43-SR//COMPE2] FS#-20-1-1-B-1-B-B/CML202	113	16	10	2.16	12	2.2	0.86	8.1	6.2	1.00	5.9
16 SPLC7F182-1-2-2-B-B-B/CML202	111	19	15	2.78	5	2.4	0.80	5.6	3.6	0.94	5.5
48 SC513	112	19	11	1.96	19	2.1	0.79	6.9	4.1	0.90	5.7
20 INTA-191-2-1-2-B-B-B/CML202	107	20	13	1.51	31	3.7	0.77	6.6	6.6	0.85	5.3
21 LATA-26-1-1-2-1-B-B/CML202	108	21	17	2.03	17	4.1	0.77	7.6	5.7	0.96	6.1
11 [[K64R/PL16-SR]-39-1]([K64R/PL16-SR]-20-2]-5-1-2-B-B-B/CML202	105	22	11	1.98	18	3.7	0.89	6.4	4.8	1.00	5.3
23 G16SeqC1F47-2-1-2-1-B-B-B/CML206	109	24	12	4.32	1	3.4	0.86	7.1	4.1	0.98	5.4
27 INTB-91-1-2-2-1-B-B/CML206	103	24	12	1.80	23	4.1	0.92	6.5	4.7	0.98	5.2
39 PAN 6561	97	25	15	0.86	46	1.2	0.84	6.9	3.5	1.00	5.9
18 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1]-8-1-1-B-1-B/CML202	102	26	15	2.13	14	3.3	0.87	6.2	4.6	0.96	5.6
24 DTP1WC6F181-1-#-3-1-1-B-B-B/CML206	92	29	11	1.48	33	2.9	0.83	8.3	5.8	1.02	5.5
35 PAN 6235	93	29	16	0.80	47	3.8	0.91	6.8	6.2	0.94	6.3
50 LOCAL CHECK	93	30	14	1.75	26	2.0	0.80	6.6	4.8	0.94	6.2
41 CG4585	88	32	13	0.93	43	4.0	0.78	6.6	5.0	0.91	5.7
25 [[K64R/P30-SR]-82-2]([K64R/P30-SR]-87-4]-7-3-4-B-B-B-B/CML206	87	35	11	1.64	28	2.3	0.87	6.6	5.6	0.96	5.7
33 PAN 473	85	35	9	0.65	49	1.8	0.90	7.0	5.1	0.84	6.2
34 PAN 6043	83	36	13	0.56	50	2.1	0.89	6.7	4.2	0.97	6.2
38 PAN 6549	75	41	13	0.88	45	3.5	0.78	6.4	5.1	0.81	5.9
Hybrids with anthesis date between 71 and 73 days											
17 TS6C1F238-1-3-3-1-2-#-B-B-B/CML202	117	15	15	2.67	6	2.4	0.88	6.7	4.0	0.96	5.0
15 IKENE8149SR-68-2-BBB-6-BB-B-B-B/CML202	113	17	14	3.00	3	2.4	0.79	7.6	3.0	1.02	5.5
19 [EV7992#EV8449-SR]C1F2-334-1(OSU8i)-10-7(I)-X-X-X-2-B-B-1-B/CML202	107	19	13	1.89	21	3.2	0.78	6.7	4.3	0.93	4.6
3 [[NAW 5867/P30-SR]-111-2]([NAW 5867/P30-SR]-25-1]-8-S7/CML395	103	23	14	2.04	15	2.7	0.75	6.1	3.5	0.90	5.6
26 TS6C1F238-1-3-3-1-2-#-B-B-B/CML206	101	24	15	1.60	29	2.5	0.78	5.7	3.0	0.98	5.2
7 [NAW 5867/P49-SR(S2#)/NAW 5867] FS#-48-S7/CML216	99	25	18	1.76	25	4.1	0.68	7.3	3.3	1.00	5.9
28 ZM605 C2F1-17-1-B-1-B/CML206	89	31	17	2.39	8	4.8	0.78	6.8	5.6	0.98	5.1
29 [[TUXPSEQ]C1F2/P49-SR]F2-103-2-2-3-B/CML206	80	37	12	1.72	27	4.2	0.60	6.1	5.8	0.92	5.6
Mean	100	25	13	1.79	25	2.6	0.83	7.0	4.9	0.94	5.8
LSD (0.05)				0.72		1.2	0.15	1.3	2.1	0.13	0.5
Min	75	13	9	0.56	1	0.3	0.60	5.6	2.8	0.80	4.6
Max	122	41	18	4.32	50	4.8	1.00	8.5	7.9	1.06	6.6

4. Measurements

Rel. GY	Relative grain yield expressed as percentage of the mean grain yield of the trial. Values above 100% indicate above-average performance; values below 100% indicate below-average performance.
Rank Avg.	Average rank for grain yield across all trials. Small values indicate superior performance; large values indicate inferior performance.
Rank Stdev.	Standard deviation of rank for grain yield across all trials. Small values indicate stable performance; large values indicate variable performance.
Grain yield	Shelled grain weight per plot adjusted to 12.5% grain moisture and converted to tons per hectare.
Anthesis date	Measured as number of days after planting when 50% of the plants shed pollen.
Plant height	Measured as height between the base of a plant to the insertion of the first tassel branch of the same plant.
Ear height	Measured as height between the base of a plant to the insertion of the top ear of the same plant.
Ear position	Ear height expressed as a percentage of plant height. Small values indicate low ear position; large values indicate high ear position.
Root lodging	Measured as percentage of plants that show root lodging, i.e. those stems are inclining by more than 45°.
Stem lodging	Measured as percentage of plants that show stem lodging, i.e. those stems are broken below the ear.
Husk cover	Measured as percentage of plants with ears that are not completely covered by the husks.
Ear rot	Percentage of ears that are rotten.
GLS	Score for the severity of gray leaf spot (<i>Cercospora zeae-maydis</i>) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).
Pucc. sorghi	Score for the severity of common rust (<i>Puccinia sorghi</i>) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).
E. turcicum	Score for the severity of northern leaf blight (<i>Exserohilum turcicum</i>) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).
Striga count	Number of <i>Striga hermonthica</i> plants emerged using artificial infestation. Large values indicate susceptibility to <i>Striga</i> , small values indicate partial resistance to <i>Striga</i> .
Chilo part.	Score for the severity of <i>Chilo partellus</i> leaf damage rated on a scale from 1 (= no infestation) to 9 (= severely infested).
Grain weevil	Number of grain weevils hatching and emerging from an infested grain sample within a given period. Large values indicate susceptibility to grain weevils, small values indicate partial resistance to grain weevils.
Grain texture	Rated on a scale from 1 (= flint) to 5 (=dent).
Grain moisture	As measured at harvest.

ASI Anthesis-silking interval. Determined by (i) measuring the number of days after planting when 50% of the plants shed pollen (anthesis date, AD) and show silks (silking date, SD), respectively, and (ii) calculating: $ASI = SD - AD$. If measured under drought or N stress, small or negative values indicate stress tolerance.

EPP Number of ears per plant. Counted as number of ears with at least one fully developed grain divided by the number of harvested plants. An EPP of below 1.0 indicates partial barrenness, an EPP of above 1.0 indicates partial prolificacy. If taken under drought or N stress, values of greater or equal 1.0 indicate stress tolerance.

Leaf rolling Leaf rolling score measured under drought stress on a scale from 1 (unrolled, turgid leaves, desirable) to 5 (severely rolled leaves, undesirable).

Senescence Leaf senescence score on a scale from 1 to 10. Taken during grain-filling by estimating the percentage of dead leaf area and dividing it by 10. If taken under drought or N stress, small scores indicate stress tolerance.

1 = 10% dead leaf area	6 = 60% dead leaf area
2 = 20% dead leaf area	7 = 70% dead leaf area
3 = 30% dead leaf area	8 = 80% dead leaf area
4 = 40% dead leaf area	9 = 90% dead leaf area
5 = 50% dead leaf area	10 = 100% dead leaf area

5. Sites

Trial classification	Country	Site	Collaborator
Rainfed / well-fertilized			
Random drought	Botswana	Good Hope	L. Lekgari
Random drought	Botswana	Pandamatenga	L. Lekgari
Random drought	Botswana	Sebele	L. Lekgari
Midalt. eastern Africa	Ethiopia	Bako	L. Wolde
Midalt. eastern Africa	Kenya	Embu	D. Kirubi, F. Manyara
Midalt. eastern Africa	Kenya	Kitale	G. Ombakho
Midalt. eastern Africa	Kenya	Mtwapa	W. Chivatsi
Lowlands	Malawi	Baka	P. Banda
Lowlands	Malawi	Chitala	G. Nhlane
Midalt. southern Africa	Malawi	Chitedzi	P. Ngwira
Random drought	Mozambique	Morrumbala-Zambezia	R. Xavier
Lowlands	Mozambique	Mutarara	R. Xavier
Lowlands	Mozambique	SEMOC, Umbeluzi	M. Denic
Lowlands	Mozambique	Tete	A. Andressona Sandramo
Lowlands	Mozambique	Umbeluzi	D. Mariote
	Nigeria	IITA, Temti Jos	A. Menkir
Midalt. southern Africa	South Africa	Greytown	M. Barrow
Random drought	South Africa	Nelspruit	M. Anthony
Midalt. eastern Africa	Tanzania	Arusha	Z. Mduruma, H. Akonaay, Z. Mrinji
Lowlands	Tanzania	Ilonga	F. Tadayo
Lowlands	Tanzania	Katrin	A. Liampawe
Midalt. southern Africa	Tanzania	Likonde	N. Lyimo
Lowlands	Tanzania	Milingao	A. Swai
Midalt. southern Africa	Tanzania	Uyole	N. Lyimo
Midalt. eastern Africa	Uganda	Masaka	D. Kyetere, J. Imanywoha
Midalt. eastern Africa	Uganda	Namulonge	J. Imanywoha, D. Kyetere
Midalt. southern Africa	Zambia	Magoye	C. Mwambula, T. Manda
Lowlands	Zambia	Masumba	C. Mwambula, T. Manda
Lowlands	Zambia	Msekera	C. Mwambula, T. Manda
Midalt. southern Africa	Zambia	Mount Makulu	C. Mwambula, T. Manda
Midalt. southern Africa	Zimbabwe	ART-Farm	L. Mutemeri, E. Tembo
Midalt. southern Africa	Zimbabwe	Glendale	R. Arkell, E. Tembo
Lowlands	Zimbabwe	Makoholi	P. Mushiringi
Midalt. southern Africa	Zimbabwe	Ratray-Arnold	P. Rupende, M. Caulfield
Midalt. southern Africa	Zimbabwe	Ruwa	B. Cowley

Trial classification	Country	Site	Collaborator
Managed drought stress			
Managed drought	Angola	Mazozo	F. Sito
Managed drought	Malawi	Chitala	G. Nhlane, V. Kabambe
Managed drought	Tanzania	Selian	Z. Mduruma, H. Akonaay, Z. Mrinji
Managed drought	Zimbabwe	Chiredzi	N. Damu, T. Dube, M. Bänziger
Managed drought	Zimbabwe	Save Valley	N. Mangombe, G. Masakwa
Managed N stress			
Managed N stress	Angola	Mazozo	F. Sito
Managed N stress	Malawi	Chitedze	V. Kabambe, G. Nhlane
Managed N stress	Mozambique	Sussundenga	D. Mariote, M. Langa
Managed N stress	Zambia	Golden Valley	C. Mungoma, H. Masole
Managed N stress	Zimbabwe	CIMMYT, Harare	N. Damu, M. Bänziger
Managed N stress	Zimbabwe	DR&SS, Harare	R. Madamba, G. Masakwa
Artificial inoculation and infestations			
E. turcicum and GLS	Ethiopia	Bako	L. Wolde
Striga hermonthica	Kenya	Alupe	A. Diallo
Chilo partellus	Kenya	Embu	M. Gethi
E. turcicum and GLS	Kenya	Kakamega	O. Odongo
E. turcicum	Kenya	Kitale	G. Ombakho
Head smut	Kenya	Muguga	J. Njuguna
MSV	Kenya	Muguga	J. Ininda
E. turcicum	Malawi	Chitedzi	P. Ngwira
E. turcicum	Uganda	Namulonge	D. Kyetere, J. Imanywoha
GLS	Uganda	Masaka	J. Imanywoha, D. Kyetere
GLS	Zimbabwe	CIMMYT, Harare	E. Tembo, K. Pixley
MSV	Zimbabwe	CIMMYT, Harare	S. Mawere, K. Pixley
Maize grain weevil	Zimbabwe	CIMMYT, Harare	M. Masukume, K. Pixley

6. Collaborators

Country	Organization	Collaborator	P.O. Box	City
Angola	Instituto de Investigacao Agronomica	Fernando P. Sito	Caixa Postal 2104	Luanda
Botswana	Department of Agricultural Research	Lekgari Lekgari	Private Bag 0033	Gaborone
Ethiopia	EARO, Bako Agricultural Research Centre	Legesse Wolde	P.O. Box 3	Bako
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