

Results of the 2011 Regional Maize Trials Coordinated by CIMMYT-Kenya



**Results of the 2011 Regional Maize Trials Coordinated by
CIMMYT-Kenya**



INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER

CIMMYT

The International Maize and Wheat Improvement Center, known by its Spanish acronym, CIMMYT® (www.cimmyt.org), is an international, not-for-profit research and training organization. With partners in over 100 countries, the center works to sustainably increase the productivity of maize and wheat systems to ensure global food security and reduce poverty. The center's outputs and services include improved maize and wheat varieties and cropping systems, the conservation of maize and wheat genetic resources, and capacity building. CIMMYT belongs to and is funded by the Consultative Group on International Agricultural Research (CGIAR) (www.cgiar.org) and also receives support from national governments, foundations, development banks, and other public and private agencies. CIMMYT is particularly grateful for the generous, unrestricted funding that has kept the center strong and effective over many years.

© International Maize and Wheat Improvement Center (CIMMYT) 2012. All rights reserved. The designations employed in the presentation of materials in this publication do not imply the expression of any opinion whatsoever on the part of CIMMYT or its contributory organizations concerning the legal status of any country, territory, city, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. The opinions expressed are those of the author(s), and are not necessarily those of CIMMYT or our partners. CIMMYT encourages fair use of this material. Proper citation is requested.

The Drought Tolerant Maize for Africa (DTMA) Project is jointly being implemented by CIMMYT and the International Institute for Tropical Agriculture (IITA), and is funded by the Bill & Melinda Gates Foundation and the Howard G. Buffett Foundation. The project is part of a broad partnership also involving national agricultural research and extension systems, seed companies, non-governmental organizations (NGOs), community-based organizations (CBOs), and advanced research institutes, known as the DTMA Initiative. Its activities build on longer-term support by other donors, including the Swiss Agency for Development and Cooperation (SDC), the German Federal Ministry for Economic Cooperation and Development (BMZ), the International Fund for Agricultural Development (IFAD), the United States Agency for International Development (USAID), and the Eiselen Foundation. The project aims to develop and disseminate drought tolerant, high-yielding, locally-adapted maize varieties and to reach 30–40 million people in sub-Saharan Africa with these varieties within 10 years.

Acknowledgement: These trials were supported by the Bill and Melinda Gates Foundation, the Howard G. Buffett Foundation, the German Federal Ministry for Economic Cooperation and Development (BMZ), and the collaborators listed in Section 3. Finally, CIMMYT is extremely grateful for the generous, unrestricted funding that has supported this and other areas of the center and partners' work over many years.

The help rendered by J. Kasango and S. Assanga in the preparation of this publication is acknowledged.

Correct Citation: Makumbi, D. 2012. Results of the 2011 Regional Trials Coordinated by CIMMYT-Kenya. Nairobi, Kenya. CIMMYT.

Contact Information

CIMMYT-Kenya, ICRAF House, United Nations Avenue, Gigiri
P.O. Box 1041 - 00621, Nairobi, KENYA
Tel.:+ 254-20-7224600 / 7224608; Fax: 254-20-7224601 / 7224001. Email: cimmyt-kenya@cgiar.org

Accuracy of information: The information in this publication is based on results available at the time of publication. This does not exclude that the germplasm may perform differently if grown at other sites, or under different conditions.

Plant breeders' rights: Germplasm developed by CIMMYT is made freely available for any agricultural research or breeding purposes. Prior to the release, commercialization, or application for any form of IPR on CIMMYT germplasm or related information, written permission from CIMMYT must be obtained. Germplasm developed by institutions other than CIMMYT (private seed companies, National Agricultural Research Programs) are subject to restrictions imposed by those institutions on their germplasm. Evaluation of germplasm by CIMMYT does not imply endorsement or recommendation.

Printed in Nairobi, Kenya

Contents

1. Introduction	4
Maize Germplasm.....	4
Trial Management	4
Data Analysis.....	5
Summary Tables.....	5
Individual Site Results	5
How can the results be used	7
2. Description of Traits Recorded	8
3. Sites and Collaborators	10
4. Summary Results	12
Intermediate to Late Maturing Hybrids (ECA-ILHT11)	12
Intermediate to Late Maturing Open Pollinated Varieties (ECA-ILVT11).....	14
Early Maturing Open Pollinated Varieties (ECA-EVT11)	16
Intermediate Maturing Double Topcross Hybrids (ECA-IDTC11)	17
5. Individual Site Results (Agronomic traits)	19
Intermediate to Late Maturing Hybrids (ECA-ILHT11)	19
Intermediate to Late Maturing Open Pollinated Varieties (ECA-ILVT11).....	37
Early Maturing Open Pollinated Varieties (ECA-EVT11)	42
Intermediate Maturing Double Topcross Hybrids (ECA-IDTC11)	45

1. Introduction

Maize germplasm

The trials evaluated elite pre-release and released maize germplasm supplied by CIMMYT and private seed companies from eastern Africa. CIMMYT grouped the germplasm according to vigor and maturity, and formed four replicated trials:

ECA-ILHT11: intermediate to late maturing three way cross hybrids

ECA-ILVT11: intermediate to late maturing open pollinated varieties

ECA-EVT11: early maturing varietal hybrids

ECA-IDTC11: intermediate maturing double topcross hybrids

All trials were alpha (0, 1) lattice design with two to three replicates. Plot size was one or two-rows per entry.

Trial management

The trials were grown by CIMMYT, National Agricultural Research Programs and private seed companies in eastern and central 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.

A complete list of the sites can be found in Section 3.

Data analysis

In each Table, entries are grouped by anthesis date and 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 according to management of the sites: Rainfed/well fertilized, managed drought stress, and managed N stress.

Each trial for ECA-ILHT11, ECA-ILVT11, ECA-EVT11 and ECA-IDTC11 is presented with two Summary Tables and Individual site results. Additional agronomic traits data for individual sites is presented on the accompanying CD.

Summary Tables

The Summary Tables present grain yields averaged across sites with significant differences between entries, for each of the management. Data on agronomic performance such as anthesis date, plant and ear height, ear position, root and stem lodging, husk cover, ear rot, leaf diseases, grain texture and grain moisture were averaged across all 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.

For ECA-ILHT11, ECA-ILVT11, ECA-EVT11 and ECA-IDTC11 within each maturity group, **grain yields, anthesis date, plant height, root and stem lodging, husk cover, ear rot, leaf diseases, grain texture, ear and plant aspect traits 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, $P \leq 0.05$). 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.

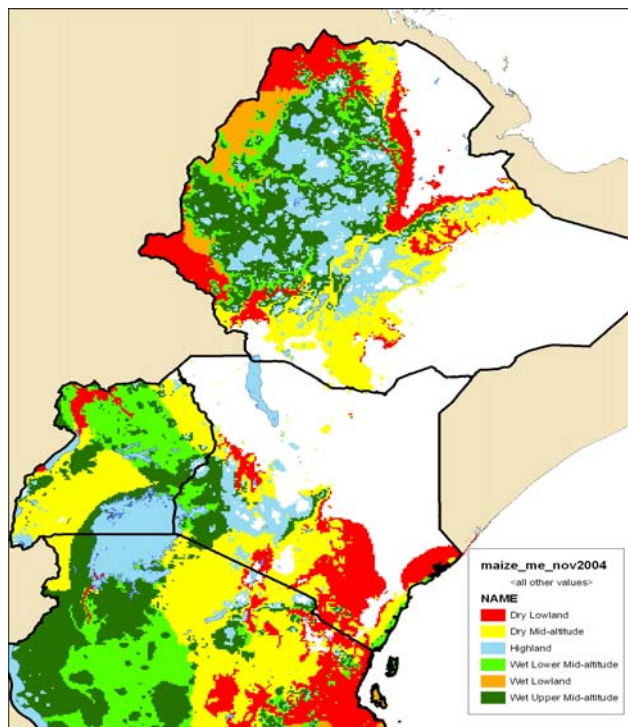
Color Legend		
Within a maturity group, colors that have no letter in common are different by at least one LSD. LSDs were calculated from the mean square error that was pooled across sites.	A	Very Good
	AB	Good
	BC	Average
	CD	Poor
	D	Very Poor

A description of all measurements can be found in Section 2.

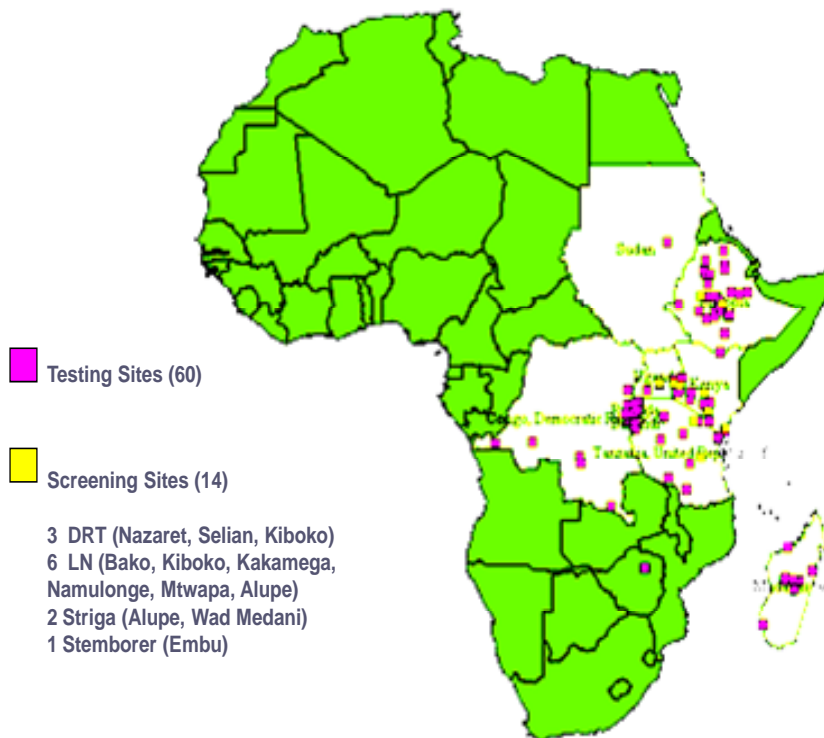
Individual site results

These tables present grain yields and other agronomic traits for individual sites, grouped by management. A description of the sites can be found in Section 3.

Maize Mage-Environments in Eastern Africa



Testing Sites



How can the results be used.....

.... by National Agricultural Research Programs?

- ◆ Request seed of the very best stress-tolerant, responsive OPVs, hybrids and inbred lines from CIMMYT 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, OPVs) in your breeding program and for registration.

.... 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, OPVs) in your breeding program and for commercialization.

.... by Seed-Distributing Agencies?

- ◆ Use data from Regional Trials (available from CIMMYT-Kenya) 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 OPVs 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.

2. Descriptions of Traits Recorded

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	A ratio of ear height to 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 that are inclining by more than 45°.
Stem Lodging	Measured as percentage of plants that show stem lodging, i.e. those stems that 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).
<i>P. sorghi</i>	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).
<i>E. turcicum</i>	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).
<i>H. maydis</i>	Score for the severity of maydis leaf blight (<i>Helminthosporium maydis</i>) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).
DM	Score for the severity of Downy Mildew (<i>Pernosclerospora</i> sp.) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).
PLS	Score for the severity of <i>Phaeosphaeria</i> leaf spot (<i>Phaeosphaeria maydis</i>) symptoms rated on a scale from 1 (= clean, no infection) to 5 (= severely diseased).

Borer damage	Score for the severity of stem borer (<i>Busseola</i> and <i>Chilo</i>) damage rated on a scale from 1 (= clean, no damage) to 5 (= severe damage).
<i>Busseola</i> larvae	Count of the number of <i>Busseola</i> larvae. Higher the number indicates susceptibility.
<i>Chilo</i>	Score for the severity of <i>Chilo partellus</i> leaf damage rated on a scale from 1 (= no infestation) to 9 (= severely infested).
Leaf toughness	Force required to puncture leaves between veins as measured by the penetrometer. Genotypes with lower numbers tend to be susceptible to borers.
Grain weevil (Total F1)	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 weevil (Wt loss)	Loss of weight of the grain samples caused by weevil feeding during a given period of incubation. Large values indicate susceptibility to weevils.
Grain texture	Rated on a scale from 1 (= flint) to 5 (=dent).
Grain moisture	Percent water content of grain 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 to 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
QPM Modification	Score for the extent of modification (extent of opaqueness) of quality protein maize (QPM) kernels rated on a scale from 1 (fully modified/normal looking kernels) to 5 (unmodified/opaque kernels) as evaluated on a light table.

3. Sites and Collaborator Summary

Trial	Site	Location	Country	Mega Environment	Planting Date	Plot Area(m2)	Mean grain yield (t/ha)	Collaborator	Institution
ECA-ILHT11-	5	Karatu	Tanzania	Wet Upper Mid-Altitude	23-Mar-11	7.9	3.50	P Mwasapi	Meru Agro
ECA-ILHT11-	15	Elgon Downs	Kenya	Wet Upper Mid-Altitude	12-Apr-11	7.9	6.20	W Muasya	Kenya Seed Co
ECA-ILHT11-	17	Kitale	Kenya	Wet Upper Mid-Altitude	4-May-11	6.4	9.64	A Diallo	Western Seed Co
ECA-ILHT11-	18	Shikusa	Kenya	Wet Upper Mid-Altitude	28-Apr-11	6.4	5.13	A Diallo	Western Seed Co
ECA-ILHT11-	31	Kakamega	Kenya	Wet Upper Mid-Altitude	29-Mar-11	7.1	8.05	S Ajanga	KARI
ECA-ILHT11-	8	Mlingano	Tanzania	Dry Mid-Altitude	31-Mar-11	7.5	4.89	O Mduruma	AMINATA
ECA-ILHT11-	9	Hamdeni	Tanzania	Dry Mid-Altitude	29-Mar-11	7.5	4.33	O Mduruma	AMINATA
ECA-ILHT11-	36	Melkessa	Ethiopia	Dry Mid-Altitude	13-Jun-11	6.4	7.95	G Bogale	EIAR
ECA-ILHT11-	37	Dhera	Ethiopia	Dry Mid-Altitude	14-Jun-11	6.4	3.22	G Bogale	EIAR
ECA-ILHT11-	10	Mwele	Tanzania	Dry Lower Mid-Altitude	3-Apr-11	7.5	2.79	O Mduruma	AMINATA
ECA-ILHT11-	12	Weruweru	Tanzania	Dry Lower Mid-Altitude	2-Apr-11	7.5	3.93	K Kitenge	Selian Agric Res Inst
ECA-ILHT11-	13	Kiboko	Kenya	Dry Lower Mid-Altitude	6-May-11	7.9	2.86	W Muasya	Kenya Seed Co
ECA-ILHT11-	14	Thika	Kenya	Wet Lower Mid-Altitude	31-Mar-11	7.9	5.94	W Muasya	Kenya Seed Co
ECA-ILHT11-	16	Kutus	Kenya	Wet Lower Mid-Altitude	4-Apr-11	7.9	2.85	W Muasya	Kenya Seed Co
ECA-ILHT11-	19	Namulonge	Uganda	Wet Lower Mid-Altitude	18-Apr-11	8.0	7.16	G Asea	NaCRRRI
ECA-ILHT11-	20	Bulindi	Uganda	Wet Lower Mid-Altitude	12-Apr-11	8.0	5.92	G Asea	NaCRRRI
ECA-ILHT11-	21	Kibos	Kenya	Wet Lower Mid-Altitude	31-Mar-11	7.9	6.12	C Adhiambo	CIMMYT
ECA-ILHT11-	22	Serere	Uganda	Wet Lower Mid-Altitude	28-Apr-11	8.0	6.89	G Asea	NaCRRRI
ECA-ILHT11-	26	Ngaramtoni	Tanzania	Wet Lower Mid-Altitude	2-Apr-11	6.3	3.17	IFFA SEED Co	IFFA SEED Co
ECA-ILHT11-	27	Usa	Tanzania	Wet Lower Mid-Altitude	7-Apr-11	6.3	7.64	IFFA SEED Co	IFFA SEED Co
ECA-ILHT11-	30	Kibugu-Embu	Kenya	Wet Lower Mid-Altitude	14-May-11	4.3	0.43	Capt Karanja	FRESHCO
ECA-ILHT11-	33	Embu	Kenya	Wet Lower Mid-Altitude	7-Apr-11	7.9	6.58	F Manyara	KARI
ECA-ILHT11-	40	Kiboko	Kenya	Dry Mid-Altitude	8-Jun-11	5.7	3.05	D Makumbi	CIMMYT
ECA-ILHT11-	39	Kiboko	Kenya	Dry Mid-Altitude	20-Apr-11	6.3	2.97	B Das	CIMMYT
ECA-ILHT11-	28	Boma Ng'ombe	Tanzania	Unclassified	22-Feb-11	6.3	1.19	IFFA SEED CO	IFFA SEED Co
ECA-ILHT11-	38	Chiredzi	Zimbabwe	Lowland Tropical Dry	29-Jun-11	6.4	0.88	C Magorokosho	CIMMYT
ECA-ILVT11-	24	Kiboko	Kenya	Dry Mid-Altitude	8-Jun-11	5.7	2.08	D Makumbi	CIMMYT
ECA-ILVT11-	21	Kiboko	Kenya	Dry Mid-altitude	20-Apr-11	6.3	1.93	B Das	CIMMYT
ECA-ILVT11-	11	Weruweru	Tanzania	Wet Lower Mid-Altitude	2-Apr-11	8.3	4.43	K Kitenge	Selian Agric Res Inst
ECA-ILVT11-	13	Thika	Kenya	Wet Lower Mid-Altitude	31-Mar-11	7.9	6.28	W Muasya	Kenya Seed Co
ECA-ILVT11-	14	Kutus	Kenya	Wet Lower Mid-Altitude	3-Apr-11	7.9	3.41	W Muasya	Kenya Seed Co
ECA-ILVT11-	16	Namulonge	Uganda	Wet Lower Mid-Altitude	18-Apr-11	8.0	6.19	G Asea	NaCRRRI
ECA-ILVT11-	19	Embu	Kenya	Wet Lower Mid-Altitude	7-Apr-11	7.9	5.38	F Manyara	KARI
ECA-ILVT11-	15	Elgon Downs	Kenya	Wet Upper Mid-Altitude	12-Apr-11	7.9	5.09	W Muasya	Kenya Seed Co
ECA-ILVT11-	18	Kakamega	Kenya	Wet Upper Mid-Altitude	29-Mar-11	7.1	5.31	S Ajanga	KARI
ECA-ILVT11-	9	Mwele	Tanzania	Dry Lower Mid-Altitude	3-Apr-11	7.5	3.06	O Mduruma	AMINATA
ECA-ILVT11-	17	Serere	Uganda	Dry Lower Mid-Altitude	28-Apr-11	8.0	7.38	G Asea	NaCRRRI
ECA-ILVT11-	8	Mlingano	Tanzania	Dry Lower Mid-Altitude	31-Mar-11	7.5	3.21	O Mduruma	AMINATA
ECA-ILVT11-	5	Karatu	Tanzania	Wet Upper Mid-Altitude	23-Mar-11	7.9	0.17	P Mwasapi	Meru Agro

Trial	Site	Location	Country	Mega Environment	Planting Date	Plot Area(m2)	Mean grain yield (t/ha)	Collaborator	Institution
ECA-ILVT11-	7	Hamdeni	Tanzania	Dry Mid-Altitude	29-Mar-11	7.5	4.64	O Mduruma	AMINATA
ECA-ILVT11-	12	Kiboko	Kenya	Dry Mid-Altitude	5-Apr-11	7.9	3.12	W Muasya	Kenya Seed Co
ECA-ILVT11-	6	Njiro	Tanzania	Wet Lower Mid-Altitude	31-Mar-11	7.9	0.12	P Mwasapi	Meru Agro
ECA-ILVT11-	20	Chiredzi	Zimbabwe	Lowland Tropical Dry	29-Jun-11	6.4	1.29	C Magorokosho	CIMMYT
ECA-EVT11-	12	Elgon Downs	Kenya	Wet Upper Mid-Altitude	12-Apr-11	7.9	5.12	W Muasya	Kenya Seed Co
ECA-EVT11-	9	Kiboko	Kenya	Dry Mid-Altitude	5-Apr-11	7.9	3.91	W Muasya	Kenya Seed Co
ECA-EVT11-	11	Kagio	Kenya	Wet Lower Mid-Altitude	6-Apr-11	7.9	3.86	W Muasya	Kenya Seed Co
ECA-EVT11-	8	Mlingano	Tanzania	Dry Lower Mid-Altitude	31-Mar-11	7.5	4.01	O Mduruma	AMINATA
ECA-EVT11-	7	Hamdeni	Tanzania	Dry Mid-Altitude OPT	29-Mar-11	7.5	3.17	O Mduruma	AMINATA
ECA-EVT11-	18	Kiboko	Kenya	Dry Mid-altitude	20-Apr-07	6.3	2.51	B Das	CIMMYT
ECA-EVT11-	19	Kiboko	Kenya	Dry Mid-Altitude	9-Jun-11	6.3	2.34	D Makumbi	CIMMYT
ECA-EVT11-	5	Karatu	Tanzania	Wet Upper Mid-Altitude	23-Mar-11	7.9	2.67	P Mwasapi	Meru Agro
ECA-IDTC11-	23	Melkasa	Ethiopia	Dry Mid-Altitude	13-Jun-11	6.4	8.62	G Bogale	EIAR
ECA-IDTC11-	24	Dhera	Ethiopia	Dry Mid-Altitude	14-Jun-11	6.4	3.24	G Bogale	EIAR
ECA-IDTC11-	15	Thika	Kenya	Wet Lower Mid-Altitude	31-Mar-11	7.9	6.09	W Muasya	Kenya Seed Co
ECA-IDTC11-	16	Kutus	Kenya	Wet Lower Mid-Altitude	12-Apr-11	7.9	5.34	W Muasya	Kenya Seed Co
ECA-IDTC11-	27	Namulonge	Uganda	Wet Lower Mid-Altitude	19-Apr-11	8.0	5.37	G Asea	NaCRRRI
ECA-IDTC11-	11	Weruweru	Tanzania	Wet Lower Mid-Altitude	2-Apr-11	8.3	2.68	K Kitenge	Selian Agric Res Inst
ECA-IDTC11-	14	Kutus	Kenya	Wet Lower Mid-Altitude	3-Apr-11	7.9	1.77	W Muasya	Kenya Seed Co
ECA-IDTC11-	13	Kiboko	Kenya	Dry Mid-Altitude	6-May-11	7.9	1.62	W Muasya	Kenya Seed Co
ECA-IDTC11-	29	Kiboko	Kenya	Dry Mid-Altitude	20-Apr-11	5.7	3.94	B Das	CIMMYT
ECA-IDTC11-	17	Shikusa Prisons	Kenya	Wet Upper Mid-Altitude	27-Apr-11	6.3	3.91	A Diallo	Western Seed Co
ECA-IDTC11-	18	Kibos	Kenya	Wet Upper Mid-Altitude	31-Mar-11	7.9	6.05	C Adhiambo	CIMMYT
ECA-IDTC11-	21	Kakamega	Kenya	Wet Upper Mid-Altitude	30-Mar-11	7.1	4.86	S Ajanga	KARI
ECA-IDTC11-	22	Embu	Kenya	Wet Lower Mid-Altitude	8-Apr-11	7.9	6.62	F Manyara	KARI
ECA-IDTC11-	8	Mlingano	Tanzania	Dry Lower Mid-Altitude	31-Mar-11	6.4	4.86	O Mduruma	AMINATA
ECA-IDTC11-	9	Hamdeni	Tanzania	Dry Lower Mid-Altitude	29-Mar-11	6.4	5.33	O Mduruma	AMINATA
ECA-IDTC11-	26	Serere	Uganda	Dry Lower Mid-Altitude	28-Apr-11	8.0	7.36	G Asea	NaCRRRI
ECA-IDTC11-	6	Njiro	Tanzania	Dry Lower Mid-Altitude	4-Apr-11	7.9	0.37	P Mwasapi	Meru Agro
ECA-IDTC11-	7	Valeska	Tanzania	Unclassified	4-Apr-11	7.9	3.11	P Mwasapi	Meru Agro
ECA-IDTC11-	19	Madira	Tanzania	Unclassified	23-Apr-11	7.9	3.04	U Barmam	BRAC
ECA-IDTC11-	25	Chiredzi	Zimbabwe	Lowland Tropical Dry	7-Jun-11	6.4	0.78	C Magorokosho	CIMMYT
ECA-IDTC11-	32	Kiboko	Kenya	Dry Mid-Altitude	9-Jun-11	6.3	1.42	D Makumbi	CIMMYT

4. Summary Results

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids across 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1A

Entry	Pedigree	Across			DRY MID-ALTIITUDE MDS	LOWLAND TROPICAL DRY MDS	DRY MID-ALTIITUDE Low N	DRY MID-ALTIITUDE OPT	WET LOWER MID-ALTIITUDE OPT	WET UPPER MID-ALTIITUDE OPT	Anth Date	ASI	Plant Height	Ear Height	Ear Position	Lodging		Ears/Plant	Husk Cover	Ear Rot	GLS	P.sorg	E.turc	Leaf Senes	Grain Text	Ear Aspect	Plant Aspect
		RelGY	Rank	StDev	Across GY	Across GY	Across GY	Across GY	Across GY	Across GY						Root	Stem										
		%	Avg		t/ha	t/ha	t/ha	t/ha	t/ha	t/ha						d	d										
Entries with anthesis date between 71 - 72 days																											
21	CML488/CZL0003/CKL05019	103	20	12	1.3	1.5	2.9	8.0	5.6	8.0	72	3	219	104	0.5	14	18	0.9	7	11	2.1	2.2	2.2	3.4	1.5	2.5	2.8
27	CML202/CML395/CKL08085	92	25	10	3.0	0.9	3.2	7.2	4.7	7.2	72	2	196	91	0.4	9	20	1.0	4	21	2.9	2.2	2.2	3.1	2.1	2.8	2.8
34	H5T3	95	27	8	2.7	1.5	2.8	7.6	5.2	5.8	72	1	214	108	0.6	26	18	1.0	8	14	3.1	2.5	2.1	3.5	2.0	2.6	3.1
37	DK8031	81	31	11	2.1	1.0	3.9	7.2	4.2	5.4	71	3	209	101	0.5	10	18	0.9	17	18	2.2	2.4	2.0	3.6	3.4	3.5	2.7
Maturity group average					2.3	1.3	3.2	7.5	4.9	6.6	72	2	210	101	0.5	15	19	1.0	9	16	2.6	2.3	2.1	3.4	2.3	2.8	2.8
Entries with anthesis date between 73 - 74 days																											
6	CML442/CML444/CKL08002	119	12	8	3.7	1.8	3.2	7.6	5.9	9.0	73	0	201	99	0.5	10	15	1.0	10	13	2.0	2.1	2.2	3.4	2.8	2.6	
16	CML442/CML445/CKL05022	115	14	8	3.7	1.3	2.5	7.7	6.1	8.4	74	0	210	109	0.5	14	27	1.0	10	11	2.2	2.1	2.0	3.4	2.5	2.6	2.8
15	CML442/CML445/CKL05017	103	17	12	3.6	1.1	2.8	8.4	5.4	8.9	73	0	198	92	0.4	11	30	1.0	9	8	2.2	2.3	1.9	3.2	2.1	2.5	2.6
11	CML312/CML442/CKL05015	97	18	11	3.4	0.4	3.4	8.1	5.9	8.0	74	1	218	104	0.5	12	26	0.9	9	8	2.8	2.2	2.0	3.1	2.5	2.4	2.7
25	CML444/CML489/CKL05019	111	18	11	2.2	0.6	2.3	8.1	6.0	8.3	74	1	216	115	0.5	12	20	1.0	3	10	2.2	2.3	2.3	3.1	1.6	2.2	2.8
8	CML442/CML444/CKL08063	104	19	11	3.0	1.4	3.7	8.2	5.9	6.4	73	1	208	96	0.5	14	13	1.0	12	18	2.3	2.3	2.3	3.0	2.7	2.8	2.9
19	CZL00003/CML444/CKL05019	98	20	12	2.0	0.7	3.2	7.8	6.3	7.4	74	2	228	109	0.5	19	20	0.9	3	6	2.1	2.2	2.3	3.4	1.4	2.2	2.9
7	CML442/CML444/CKL08006	112	21	10	3.2	2.4	2.8	5.9	5.6	7.3	73	1	192	97	0.5	15	16	1.0	16	15	2.3	2.3	2.1	3.1	3.5	3.0	2.6
20	CZL00003/CML444/CKL05017	95	22	8	2.5	0.7	3.1	7.4	5.5	8.0	74	1	209	98	0.5	9	27	1.0	13	7	2.0	2.2	2.1	3.8	2.1	2.5	2.6
31	CKL05005/CKL05017/CML442/CML444	101	22	7	3.1	1.1	2.8	7.7	5.2	7.2	74	0	195	94	0.5	11	14	1.0	4	9	2.3	2.2	2.0	3.0	2.2	2.6	2.8
33	CKL05005/CKL05022/CML442/CML444	99	22	10	3.3	0.5	4.0	7.4	5.2	7.3	74	0	212	115	0.5	11	21	1.0	5	9	2.3	2.3	1.9	3.4	2.3	2.5	2.8
40	LOCAL	87	27	14	2.1	0.6	3.4	6.3	3.9	8.3	74	2	214	104	0.5	15	20	1.0	4	14	2.9	2.6	1.9	3.9	2.7	2.8	2.8
22	CML488/CZL00003/CKL05009	87	28	8	2.2	0.7	2.6	7.1	5.1	7.2	73	1	211	105	0.5	13	39	1.0	11	15	2.0	2.2	2.1	3.8	1.6	2.7	2.9
Maturity group average					2.9	1.0	3.1	7.5	5.5	7.8	74	1	208	103	0.5	13	22	1.0	8	11	2.3	2.2	2.1	3.3	2.4	2.6	2.8
Entries with anthesis date between 75 - 76 days																											
13	CML442/CML445/CKL05003	112	9	11	4.1	0.3	4.2	9.5	6.6	8.7	76	2	209	118	0.5	12	24	1.0	9	13	2.7	2.1	2.2	3.5	2.5	2.4	2.6
29	CML442/CML444/CKL05003/CKL05017	119	12	9	3.8	0.6	3.8	8.3	6.4	8.2	75	1	208	102	0.5	9	24	1.0	6	7	2.2	2.2	2.1	3.1	2.4	2.3	2.5
10	CML312/CML442/CKL05003	108	12	14	3.9	0.1	4.2	9.5	6.6	8.9	75	2	215	105	0.5	11	21	1.0	18	8	2.7	2.4	2.2	3.0	2.6	2.4	2.7
12	CML312/CML442/CKL05022	116	14	10	3.2	0.5	2.9	7.9	6.1	9.2	75	0	208	106	0.5	13	25	0.9	7	10	2.3	2.2	2.2	3.5	2.4	2.5	2.8
4	CML442/CML444/CKL05018	111	16	7	3.1	1.5	3.0	8.0	5.9	7.8	75	1	205	103	0.5	15	30	1.0	12	9	2.2	2.1	2.0	3.2	2.5	2.9	
3	CML442/CML444/CKL05017	99	18	13	2.5	0.6	3.7	8.5	5.2	8.7	75	0	207	94	0.5	8	25	1.0	8	9	2.0	2.1	1.9	3.3	2.2	2.4	2.7
18	CZL00003/CML444/CKL05022	116	18	12	3.1	2.4	1.7	8.7	5.4	8.2	75	0	213	101	0.5	12	34	0.9	11	10	2.0	2.2	2.1	3.4	2.2	2.5	2.8
35	WH403	105	19	11	2.0	1.1	3.6	9.1	5.6	7.6	75	1	212	105	0.5	9	24	1.0	12	10	2.5	2.3	2.3	3.5	1.9	2.5	2.8
5	CML442/CML444/CKL05022	105	19	11	3.1	0.6	2.6	7.0	6.0	8.1	76	0	217	116	0.6	14	29	1.0	4	8	2.3	2.2	2.1	3.4	2.7	2.5	2.9
2	CML442/CML444/CKL05015	102	20	11	4.1	0.6	3.3	7.4	5.6	7.5	76	0	215	108	0.5	15	31	1.0	4	7	2.5	2.1	2.3	3.2	2.6	2.7	2.7
14	CML442/CML445/CKL05004	93	21	10	3.9	0.7	2.7	8.6	5.7	6.4	75	1	200	101	0.5	10	39	0.9	8	13	2.6	2.1	2.2	3.0	2.7	2.6	2.7
28	CKL05003/CKL05005/CML442/CML444	95	22	10	2.8	0.7	3.0	9.1	5.8	6.3	76	1	196	95	0.5	14	22	1.0	5	13	2.7	2.2	2.0	2.9	2.5	2.7	2.7
24	CML444/CML489/CKL05017	94	24	9	2.5	0.9	1.2	7.5	5.3	7.6	76	0	195	99	0.5	6	24	0.9	10	7	2.1	2.2	2.1	3.4	2.0	2.5	2.7
9	CML202/CML395/CKL05024	96	24	9	2.2	0.8	1.5	7.6	5.1	8.0	75	2	200	92	0.4	9	13	1.0	7	11	2.2	2.2	1.9	3.4	2.1	2.5	2.4
36	WH505	92	25	9	3.2	0.8	1.7	9.1	5.3	6.5	76	1	204	87	0.5	14	18	1.0	6	22	2.5	2.4	2.3	3.1	2.5	2.9	2.8
32	CKL05005/CKL05018/CML442/CML444	87	29	7	3.2	0.6	2.1	7.2	5.1	6.2	75	0	192	99	0.6	9	22	0.9	8	13	2.3	2.2	2.2	3.2	2.4	2.9	2.8
39	HYTECH 1100	61	34	6	3.0	0.3	1.9	7.8	4.9	2.4	75	3	213	102	0.5	26	25	0.8	9	27	2.8	2.8	4.2	3.5	3.3	3.4	3.3
38	HYTECH 2031	58	35	8	2.9	0.3	1.2	7.1	3.9	1.6	76	1	217	99	0.5	31	32	0.8	8	34	3.0	3.0	4.7	3.5	3.2	3.7	3.4
Maturity group average					3.1	0.8	2.7	8.2	5.6	7.1	75	1	207	102	0.5	13	26	0.9	8	13	2.4	2.3	2.4	3.3	2.5	2.7	2.8
Entries with anthesis date between 77 - 78 days																											
30	CKL05003/CKL05022/CML442/CML444	115	13	12	3.9	1.2	3.4	8.5	6.8	7.0	77	1	211	105	0.5	10	26	1.0	9	8	2.4	2.3	2.2	3.0	2.4	2.4	2.9
23	CZL00003/CML444/CKL05003	110	15	12	3.3	0.3	4.4	8.8	6.3	7.4	77	3	223	120	0.6	13	26	1.0	8	8	2.4	2.5	2.1	3.2	2.3	2.6	2.6
23	CML444/CML489/CKL05003	106	17	11	3.6	0.1	3.6	9.0	6.1	7.3	78	2	211	121	0.6	15	25	1.0	7	9	2.6	2.4	2.0	2.9	2.1	2.4	2.7
1	CML442/CML444/CKL05004	102	20	12	3.9	0.6	3.7	8.1	6.1	5.9	77	0	212	110	0.5	16	38	1.0	9	9	2.6	2.2	2.1	3.5	2.7	2.7	2.7
26	CML444/CML489/CKL05022	100	21	12	3.3	1.1	2.9	7.7	6.0	6.4	77	0	214	123	0.6	15	26	1.0	8	9	2.1	2.2	2.0	3.4	2.3	2.6	2.9
Maturity group average					3.6	0.7	3.6	8.4	6.2	6.8	77	1	214	116	0.6	14	28	1.0	8	9	2.4	2.3	2.1	3.2	2.3	2.5	2.8
Mean		100	21</																								

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids across 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1B

Entry	Pedigree	Across			WET LOWER MID-ALTIITUDE RANDOM DROUGHT				WET LOWER MID-ALTIITUDE OPT					WET UPPER MID-ALTIITUDE OPT					
		RelGY	Rank	StdDev	DRY MID-ALTIITUDE MDS	LOWLAND TROPICAL DRY MDS	DRY MID-ALTIITUDE Low N	WET LOWER MID-ALTIITUDE RANDOM DROUGHT	Across	Namulonge Uga	Kibos Ken	Usa Tan	Embu Ken	Mekessa Eth	Across	Elgon Downs Ken	Kilale Ken	Shikusa Ken	Kakamega Ken
					GY	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY
%	Avg		t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha
Entries with anthesis date between 71 - 72 days																			
21	CML488/CZL0003/CKL05019	103	20	12	1.3	1.5	2.9	0.4	5.6	6.8	5.1	8.4	7.2	8.0	8.0	6.9	11.6	4.2	9.2
27	CML202/CML395/CKL08065	92	25	10	3.0	0.9	3.2	0.2	4.7	6.1	6.0	6.2	5.3	7.2	7.2	7.6	7.5	6.0	7.5
34	H513	95	27	8	2.7	1.5	2.8	0.4	5.2	6.1	6.0	6.6	7.1	7.6	5.8	5.9	7.4	3.1	6.8
37	DK8031	81	31	11	2.1	1.0	3.9	0.2	4.2	6.9	5.1	5.0	3.9	7.2	5.4	4.0	6.3	3.0	8.2
Maturity group average					2.3	1.3	3.2	0.3	4.9	6.5	5.5	6.5	5.9	7.5	6.6	6.1	8.2	4.1	7.9
Entries with anthesis date between 73 - 74 days																			
6	CML442/CML444/CKL08002	119	12	8	3.7	1.8	3.2	0.4	5.9	7.9	6.5	7.9	6.7	7.6	9.0	6.9	12.0	7.1	10.0
16	CML442/CML445/CKL05022	115	14	8	3.7	1.3	2.5	0.7	6.1	7.8	6.2	8.2	7.6	7.7	8.4	7.6	11.4	5.2	9.4
15	CML442/CML445/CKL05017	103	17	12	3.6	1.1	2.8	0.0	5.4	5.7	5.8	7.9	7.6	8.4	8.9	7.8	11.8	6.7	9.1
11	CML312/CML442/CKL05015	97	18	11	3.4	0.4	3.4	0.1	5.9	6.6	6.7	8.9	7.1	8.1	8.0	6.9	10.1	7.0	8.1
25	CML444/CML489/CKL05019	111	18	11	2.2	0.6	2.3	1.1	6.0	6.9	6.0	8.7	7.5	8.1	8.3	7.9	11.4	5.6	8.4
8	CML442/CML444/CKL08063	104	19	11	3.0	1.4	3.7	0.3	5.9	8.4	6.4	8.9	5.6	8.2	6.4	6.5	7.0	5.5	6.8
19	CZL0003/CML444/CKL05019	98	20	12	2.0	0.7	3.2	0.4	6.3	7.8	5.6	8.4	9.3	7.8	7.4	5.8	11.5	2.7	9.6
7	CML442/CML444/CKL08006	112	21	10	3.2	2.4	2.8	0.4	5.6	7.8	6.2	8.4	5.1	5.9	7.3	6.9	9.9	5.5	7.1
20	CZL0003/CML444/CKL05017	95	22	8	2.5	0.7	3.1	0.2	5.5	6.9	6.0	7.4	6.8	7.4	8.0	6.6	10.1	6.0	9.4
31	CKL05005/CKL05017/CML442/CML444	101	22	7	3.1	1.1	2.8	0.5	5.2	7.1	6.5	6.3	5.7	7.7	7.2	5.2	9.8	5.5	8.3
33	CKL05005/CKL05022/CML442/CML444	99	22	10	3.3	0.5	4.0	0.5	5.2	6.5	6.4	6.0	6.3	7.4	7.3	5.6	8.6	5.9	9.1
40	LOCAL	87	27	14	2.1	0.6	3.4	0.2	3.9	3.7	5.4	6.1	4.2	6.3	8.3	5.6	11.6	6.1	6.1
22	CML488/CZL0003/CKL05009	87	28	8	2.2	0.7	2.6	0.2	5.1	7.3	5.7	7.8	4.3	7.1	7.2	5.7	8.7	5.1	9.2
Maturity group average					2.9	1.0	3.1	0.4	5.5	7.0	6.1	7.8	6.5	7.5	7.8	6.8	10.3	5.7	8.5
Entries with anthesis date between 75 - 74 days																			
13	CML442/CML445/CKL05003	112	9	11	4.1	0.3	4.2	0.3	6.6	8.2	6.8	9.5	8.0	9.5	8.7	7.6	11.8	5.8	9.5
29	CML442/CML444/CKL05003/CKL05017	119	12	9	3.8	0.6	3.8	1.0	6.4	8.2	7.3	8.4	7.0	8.3	8.2	6.2	11.9	6.4	8.2
10	CML312/CML442/CKL05003	108	12	14	3.9	0.1	4.2	0.1	6.6	8.8	8.3	10.0	5.8	9.5	8.9	9.1	11.7	6.4	8.3
12	CML312/CML442/CKL05022	116	14	10	3.2	0.5	2.9	0.8	6.1	6.7	6.5	8.4	8.2	7.9	9.2	9.2	11.0	7.8	9.0
4	CML442/CML444/CKL05018	111	16	7	3.1	1.5	3.0	0.5	5.9	7.9	6.5	8.0	6.8	8.0	7.8	6.1	9.9	5.5	9.7
3	CML442/CML444/CKL05017	99	18	13	2.5	0.6	3.7	0.1	5.2	7.0	7.1	5.7	6.1	8.5	8.7	7.0	11.5	7.1	9.2
18	CZL0003/CML444/CKL05022	116	18	12	3.1	2.4	1.7	0.6	5.4	5.9	5.9	7.4	7.2	8.7	8.2	6.6	10.7	5.0	10.6
35	WH403	105	19	11	2.0	1.1	3.6	0.4	5.6	6.3	6.0	8.5	7.0	9.1	7.6	5.9	10.0	6.8	7.5
5	CML442/CML444/CKL05022	105	19	11	3.1	0.6	2.6	0.7	6.0	7.7	6.4	7.3	7.9	7.0	8.1	6.6	12.1	4.6	9.3
2	CML442/CML444/CKL05015	102	20	11	4.1	0.6	3.3	0.4	5.6	5.8	6.2	7.5	8.2	7.4	7.5	4.9	10.4	6.6	8.1
14	CML442/CML445/CKL05004	93	21	10	3.9	0.7	2.7	0.2	5.7	7.9	6.1	8.0	6.3	8.6	6.4	6.7	8.8	2.5	7.8
28	CKL05003/CKL05005/CML442/CML444	95	22	10	2.8	0.7	3.0	0.4	5.8	7.8	5.7	8.7	6.1	9.1	6.3	4.0	9.1	5.7	6.6
24	CML444/CML489/CKL05017	94	24	9	2.5	0.9	1.2	0.4	5.3	8.0	5.8	6.2	6.2	7.5	7.6	6.7	9.4	6.0	8.5
9	CML202/CML395/CKL05024	96	24	9	2.2	0.8	1.5	0.6	5.1	7.5	5.2	6.6	5.8	7.6	8.0	6.4	10.7	6.3	8.5
36	WH505	92	25	9	3.2	0.8	1.7	0.4	5.3	7.0	5.6	7.9	5.3	9.1	6.5	6.4	7.0	5.2	7.5
32	CKL05005/CKL05018/CML442/CML444	87	29	7	3.2	0.6	2.1	0.4	5.1	7.8	5.6	6.6	5.1	7.2	6.2	5.5	8.3	4.0	6.9
39	HYTECH 1100	61	34	6	3.0	0.3	1.9	0.0	4.9	6.0	5.8	7.2	5.4	7.8	2.4	4.1	1.6	0.9	3.2
38	HYTECH 2031	58	35	8	2.9	0.3	1.2	0.6	3.9	2.7	4.3	6.3	5.6	7.1	1.6	2.5	1.5	0.4	2.1
Maturity group average					3.1	0.8	2.7	0.4	5.6	7.1	6.2	7.7	6.6	8.2	7.1	6.2	9.3	5.2	7.8
Entries with anthesis date between 77 - 78 days																			
30	CKL05003/CKL05022/CML442/CML444	115	13	12	3.9	1.2	3.4	0.6	6.8	8.7	7.2	8.9	8.3	8.5	7.0	4.6	11.5	5.4	6.5
17	CZL0003/CML444/CKL05003	110	15	12	3.3	0.3	4.4	0.8	6.3	8.6	6.4	9.4	6.3	8.8	7.4	4.8	11.8	4.7	8.3
23	CML444/CML489/CKL05003	106	17	11	3.6	0.1	3.6	0.8	6.1	8.1	6.6	7.4	7.5	9.0	7.3	4.8	10.7	4.8	8.8
1	CML442/CML444/CKL05004	102	20	12	3.9	0.6	3.7	0.7	6.1	8.7	6.5	7.3	7.3	8.1	5.9	3.9	9.1	3.9	6.8
26	CML444/CML489/CKL05022	100	21	12	3.3	1.1	2.9	0.4	6.0	8.9	5.5	6.8	8.4	7.7	6.4	5.0	8.7	2.9	8.9
Maturity group average					3.6	0.7	3.6	0.7	6.2	8.6	6.4	8.0	7.6	8.4	6.8	4.6	10.4	4.3	7.9
Mean		100	21	10	3.05	0.88	2.97	0.43	5.59	7.16	6.12	7.64	6.58	7.95	7.25	6.20	9.64	5.13	8.05
LSD (0.05)		13	6	2	1.09	0.96	1.50	0.47	0.72	2.09	1.09	1.78	1.97	1.43	1.00	1.44	1.59	2.74	1.97
Min		58	9	6	1.33	0.10	1.16	0.01	3.88	2.68	4.28	5.01	3.86	5.94	1.64	2.52	1.50	0.42	2.11
Max		119	35	14	4.11	2.45	4.39	1.06	6.76	8.87	8.33	9.97	9.29	9.53	9.23	12.14	7.77	10.62	10.62
NumSignificantSites		13	13	13	1	1	1	1	5	1	1	1	1	1	4	1	1	1	1

ECA-ILVT11
Grain yield and other agronomic traits of 21 late maturing open-pollinated varieties (OPVs) across 17 sites in Eastern and Southern Africa, 2011.
 MDS= Managed Drought Stress; OPT= Optimum (well-fertilized/rainfed) management **TABLE 2A**

Entry	Pedigree	Across			DRY MID-ALTITUDE MDS	DRY MID-ALTITUDE OPT	WET LOWER MID-ALTITUDE OPT	WET UPPER MID-ALTITUDE OPT	Anth Date	ASI	Plant Height	Ear Height	Ear Position	Lodging		Ears/Plant	Husk Cover	Ear Rot	P.sorg	E.turc	Leaf Senes	Grain Text	Ear Aspect	Plant Aspect
		RelIGY	Rank	Across GY	Across GY	Across GY	Across GY	Root						Stem										
		%	Avg	StdDev	t/ha	t/ha	t/ha	t/ha						%	%									
Entries with anthesis date between 74 - 75 days																								
16 ECA-VL42-#	115	6	2	2.5	4.9	6.3	6.4	74	0	162	81	0.5	14	5	0.7	13	10	1.7	1.4	5.0	2.2	2.5	1.4	
17 ECA-VL43-#	123	7	6	3.8	4.3	6.8	6.1	75	0	156	83	0.6	10	2	0.8	8	11	1.7	2.3	4.9	2.1	2.4	1.5	
18 ECA-VL44-#	113	7	6	2.8	5.2	6.1	5.8	74	0	146	75	0.5	12	0	0.8	6	11	2.0	1.0	4.9	2.3	2.3	1.5	
22 H513	116	8	5	3.3	5.1	5.6	6.1	74	0	170	96	0.6	8	5	0.8	9	10	1.7	1.7	5.2	2.1	2.7	2.3	
20 ECAVL1/ECAVL18	108	8	5	2.6	5.5	6.3	4.9	74	1	211	91	0.6	20	0	0.7	2	12	2.3	1.6	5.2	1.5	2.3	2.2	
4 ECA-VL25-#	109	9	4	2.5	4.6	6.5	5.5	75	1	133	90	0.5	17	0	0.9	4	12	1.7	1.1	5.7	2.7	2.7	1.9	
8 ECA-VL30-#	105	10	3	2.2	4.9	6.3	5.3	75	1	169	92	0.5	11	2	0.7	6	14	1.8	1.3	6.0	1.9	3.0	2.5	
24 LOCAL	121	11	10	2.2	3.0	5.5	9.4	74	3	163	95	0.6	9	0	1.0	7	19	1.0	2.8	4.7	2.4	1.9	2.6	
19 ECA-VL45-#	99	13	4	2.0	4.5	5.8	5.3	74	0	163	90	0.5	8	5	0.9	9	13	2.0	1.0	4.5	2.3	2.3	1.9	
5 ECA-VL27-#	91	15	5	1.8	4.1	5.8	4.4	74	2	141	77	0.6	15	7	0.7	4	13	2.8	1.3	5.9	1.7	2.7	1.8	
2 ECA-VL22-#	91	17	6	2.4	4.0	5.6	3.9	74	1	155	80	0.5	19	0	0.7	7	15	2.5	2.1	5.4	1.7	2.9	1.3	
15 ECA-VL41-#	88	17	4	1.3	4.6	4.9	5.1	75	1	191	87	0.5	13	7	0.8	5	14	1.8	1.0	5.9	1.6	2.8	1.0	
10 ECA-VL35-#	87	17	3	1.6	4.2	5.3	4.6	75	1	121	80	0.5	12	0	0.7	7	10	3.2	2.0	6.2	1.2	2.7	2.1	
3 ECA-VL24-#	84	18	5	2.2	4.3	4.9	3.6	75	1	179	68	0.5	9	1	0.6	7	21	2.5	1.4	5.4	2.6	3.7	1.3	
13 ECA-VL38-#	81	19	7	1.3	5.0	4.4	4.2	74	0	169	85	0.6	2	0	0.7	7	14	3.0	2.2	5.6	1.9	3.1	1.4	
9 ECA-VL33-#	80	20	5	1.3	4.1	5.1	4.0	75	2	166	75	0.5	8	5	0.7	9	16	2.2	1.1	5.7	2.0	2.6	1.7	
Maturity group average				2.2	4.5	5.7	5.3	74.5	0.9	162	84	0.6	11.6	2.5	0.8	6.8	13.4	2.1	1.6	5.4	2.02	2.7	1.8	
Entries with anthesis date = 76 days																								
21 ECAVL2/ECAVL18	107	8	6	1.6	5.6	6.2	5.9	76	1	153	87	0.6	6	3	0.7	7	9	2.5	1.7	5.4	1.4	2.6	1.7	
12 ECA-VL37-#	101	12	8	1.6	3.9	6.1	6.2	76	0	181	89	0.6	7	3	0.8	7	11	1.8	1.7	5.7	2.4	2.7	1.9	
7 ECA-VL29-#	102	12	8	1.9	6.5	6.1	4.4	76	1	158	82	0.5	6	6	0.7	8	22	1.8	1.0	5.3	2.7	3.1	1.4	
14 ECA-VL39-#	89	17	4	1.7	4.4	5.0	4.9	76	1	152	88	0.5	16	2	0.8	10	15	1.7	1.8	4.6	2.4	3.0	3.2	
1 ECA-VL21-#	82	18	5	1.5	4.7	5.5	3.3	76	0	163	92	0.5	8	2	0.8	7	32	2.3	2.8	5.0	1.9	3.5	2.3	
11 ECA-VL36-#	82	18	4	1.3	4.5	4.9	4.2	76	2	151	73	0.5	9	0	0.7	18	20	2.7	1.0	4.7	2.8	3.3	2.2	
Maturity group average				1.6	4.9	5.6	4.8	75.8	0.8	159	85	0.6	8.6	2.7	0.8	9.6	18.02	2.1	1.7	5.1	2.3	3.02	2.1	
Entries with anthesis date = 78 days																								
23 WH504	129	4	4	3.1	4.6	7.4	7.0	78	1	176	82	0.6	16	0	0.8	5	8	1.5	2.1	4.6	2.7	2.2	1.0	
6 ECA-VL28-#	97	11	6	1.7	4.8	6.5	4.4	78	0	167	97	0.7	13	2	0.7	6	18	2.5	2.1	4.8	2.1	3.1	2.2	
Maturity group average				2.4	4.7	7.0	5.7	78.0	0.5	172	89	0.6	14.4	1.02	0.7	5.6	13.06	2.0	2.1	4.7	2.4	2.7	1.6	
Mean	100	13	5	2.08	4.64	5.78	5.20	75.1	0.9	162.4	84.7	0.56	11.1	2.4	0.76	7.4	14.5	2.1	1.6	5.3	2.1	2.8	1.9	
LSD (0.05)	15	5	2	0.74	0.97	0.93	1.14	1.0	1.2	24.5	13.4	0.07	8.1	3.9	0.08	4.3	7.1	0.8	1.0	0.6	0.4	0.4	0.9	
Min	80	4	2	1.27	3.03	4.40	3.31	73.7	-0.4	121.3	68.4	0.49	2.3	0.0	0.63	2.3	8.3	1.0	1.0	4.5	1.2	1.9	1.0	
Max	129	20	10	3.78	6.51	7.38	9.37	78.3	3.3	211.3	96.6	0.66	20.4	7.5	1.01	18.3	32.1	3.2	2.8	6.2	2.8	3.7	3.2	
NumSignificantSites	6	6	6	1	1	2	2	6	2	1	2	1	2	1	4	4	5	1	1	2	4	3	1	

Grain yield of 21 late maturing open-pollinated varieties (OPVs), across 17 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 2B

Entry	Pedigree	Across			LOWLAND TROPICAL DRY MDS		DRY MID-ALTITUDE MDS	DRY MID-ALTITUDE Low N	WET LOWER MID-ALTITUDE OPT			WET UPPER MID-ALTITUDE OPT			DRY MID-ALTITUDE OPT
		RelGY	Rank	StdDev	Chiredzi Zim GY	Kiboko Ken GY	Kiboko Ken GY	Across GY	Namulonge Uga GY	Embu Ken GY	Across GY	Elgon Downs Ken GY	Kakamega Ken GY	Handeni Tan GrainYield	
		%	Avg		t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	t/ha	
Entries with anthesis date between 74 - 75 days															
16 ECA-VL42-#		115	6	2	0.6	2.5	1.6	6.3	6.8	5.8	6.4	6.5	6.2	4.9	
17 ECA-VL43-#		123	7	6	1.6	3.8	2.1	6.8	7.5	6.1	6.1	5.8	6.3	4.3	
18 ECA-VL44-#		113	7	6	2.0	2.8	2.6	6.1	5.6	6.5	5.8	5.5	6.0	5.2	
22 H513		116	8	5	1.1	3.3	2.0	5.6	5.8	5.3	6.1	6.2	6.0	5.1	
20 ECAVL1/ECAVL18		108	8	5	2.09	2.6	2.1	6.3	6.2	6.4	4.9	4.8	5.1	5.5	
4 ECA-VL25-#		109	9	4	1.2	2.5	1.9	6.5	7.6	5.3	5.5	5.4	5.7	4.6	
8 ECA-VL30-#		105	10	3	1.4	2.2	1.7	6.3	7.3	5.3	5.3	5.2	5.5	4.9	
24 LOCAL		121	11	10	1.1	2.2	2.2	5.5	5.4	5.7	9.4	9.9	8.8	3.8	
19 ECA-VL45-#		99	13	4	2.5	2.0	3.0	5.8	6.4	5.1	5.3	5.8	4.7	4.5	
5 ECA-VL27-#		91	15	5	1.2	1.8	2.0	5.8	5.6	6.0	4.4	4.2	4.6	4.1	
2 ECA-VL22-#		91	17	6	0.2	2.4	1.9	5.6	5.7	5.5	3.9	3.5	4.3	4.0	
15 ECA-VL41-#		88	17	4	0.4	1.3	2.0	4.9	5.4	4.4	5.1	4.7	5.4	4.6	
10 ECA-VL35-#		87	17	3	0.5	1.6	1.3	5.3	5.9	4.7	4.6	4.2	5.0	4.2	
3 ECA-VL24-#		84	18	5	1.6	2.2	1.4	4.9	5.9	3.9	3.6	3.9	3.4	4.3	
13 ECA-VL38-#		81	19	7	1.5	1.3	1.4	4.4	4.6	4.2	4.2	3.5	4.9	5.0	
9 ECA-VL33-#		80	20	5	0.7	1.3	1.6	5.1	4.9	5.3	4.0	3.8	4.2	4.1	
Maturity group average					1.2	2.2	1.9	5.7	6.0	5.3	5.3	5.2	5.4	4.5	
Entries with anthesis date = 76 days															
21 ECAVL2/ECAVL18		107	8	6	1.5	1.6	1.5	6.2	6.3	6.1	5.9	5.3	6.6	5.6	
7 ECA-VL29-#		102	12	8	1.8	1.9	2.4	6.1	7.3	5.0	4.4	5.2	3.6	6.5	
12 ECA-VL37-#		101	12	8	1.2	1.6	2.6	6.1	6.9	5.2	6.2	6.0	6.3	3.9	
14 ECA-VL39-#		89	17	4	1.3	1.7	2.2	5.0	5.0	5.0	4.9	5.3	4.4	4.4	
1 ECA-VL21-#		82	18	5	1.4	1.5	1.4	5.5	5.8	5.2	3.3	3.7	3.0	4.7	
11 ECA-VL36-#		82	18	4	1.04	1.3	1.3	4.9	5.9	3.9	4.2	4.2	4.2	4.5	
Maturity group average		94	14	6	1.4	1.6	1.9	5.6	6.2	5.1	4.8	4.9	4.7	4.9	
Entries with anthesis date = 78 days															
23 WH504		129	4	4	1.6	3.1	2.0	7.4	7.9	6.8	7.0	6.1	8.0	4.6	
6 ECA-VL28-#		97	11	6	1.4	1.7	2.2	6.5	6.8	6.2	4.4	3.7	5.1	4.8	
Maturity group average		113	8	5	1.5	2.4	2.1	7.0	7.4	6.5	5.7	4.9	6.6	4.7	
Mean		100	13	5	1.29	2.08	1.93	5.78	6.19	5.38	5.20	5.09	5.31	4.64	
LSD (0.05)		15	5	2	1.17	0.74	1.01	0.93	1.40	1.23	1.14	1.22	1.94	0.97	
Min		80	4	2	0.21	1.27	1.4	4.40	4.63	3.91	3.31	3.51	2.97	3.03	
Max		129	20	10	2.47	3.78	3.02	7.38	7.94	6.81	9.37	9.90	8.85	6.51	
NumSignificantSites		6	6	6	0	1	0	2	1	1	2	1	1	1	

ECA-EVT11

Grain yield and other agronomic traits of 22 early to intermediate maturing open-pollinated varieties (OPVs) across 8 sites in Eastern Africa, 2011.

MDS= Managed Drought Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 3A

Entry	Pedigree	Across			DRY MID-ALTITUDE MDS	DRY MID-ALTITUDE OPT	DRY LOWER MID-ALTITUDE OPT	Anth Date	Days to Silk	Plant Height	Ear Height	Ear Position	Lodging		Ears/Plant	Husk Cover	Ear Rot	P.sorg	Leaf Senes	Grain Text
		RelGY	Rank	StdDev	Across GY	Across GY	Across GY						Root	Stem						
		%	Avg		t/ha	t/ha	t/ha						d	d						
Entries with anthesis date between 60 - 61 days																				
17	ECA-EE55-#	115	7	6	2.5	5.2	4.0	61	65	197	73	0.4	14	15	1.0	5	6	3.1	7.3	2.5
21	SYNTH2008-EECML445-#	107	8	0	2.5	4.2	4.3	61	65	182	75	0.4	30	33	1.0	2	17	2.7	7.3	2.5
1	ZIMLINE/KAT BCI - 8/SYNTH2006-#-#	109	10	6	2.1	3.8	4.8	61	64	173	72	0.4	25	17	1.1	9	8	2.0	7.0	2.0
16	SYNTH2006-#	94	14	3	2.9	3.8	3.6	60	63	190	78	0.5	44	30	1.1	8	9	2.6	7.7	2.0
22	SYNTH2008-EEAC-#	94	15	4	2.7	3.6	3.9	60	64	176	86	0.5	27	27	1.1	3	7	2.3	8.1	2.5
8	M37/MORO BCI - 5/SYNTH2006-#-#	94	15	6	3.0	3.9	3.6	61	65	186	76	0.5	25	28	1.1	6	14	2.5	7.2	2.0
20	SYNTH2008-EECML440-#	86	19	1	3.2	3.2	3.6	60	65	187	76	0.4	31	35	1.2	5	17	2.0	7.4	2.0
Maturity group average						4.0	4.0	61	64	184	77	0.4	28	26	1.1	5	11	2.5	7.4	2.2
Entries with anthesis date between 62 - 63 days																				
6	ZIMLINE/MORO BCI - 24/SYNTH2006-#-#	125	4	1	2.1	4.9	5.04	63	66	184	83	0.5	32	24	1.1	5	11	2.6	7.1	2.0
5	ZIMLINE/MORO BCI - 1/SYNTH2006-#-#	117	6	1	2.9	4.3	5.0	63	66	199	68	0.4	33	23	1.1	6	9	2.4	7.3	2.0
10	ZIMLINE/KAT BCI - 8-#-#	107	10	6	2.1	4.6	3.9	62	66	176	77	0.4	19	20	1.0	10	9	2.1	6.9	3.0
19	SYNTH2008-EEDR-#	102	13	17	2.4	2.8	5.4	62	67	195	73	0.4	12	21	1.0	3	6	3.2	7.3	3.0
15	ZIMLINE/MORO BCI - 24-#-#	96	13	4	2.2	3.6	4.0	63	67	180	76	0.4	18	29	1.1	7	15	2.5	6.6	2.5
4	ZIMLINE/KAT BCI - 15/SYNTH2006-#-#	100	13	10	2.3	4.4	3.5	63	66	184	77	0.4	27	34	1.0	12	20	2.4	7.2	2.0
13	M37/MORO BCI - 1-#-#	102	13	13	2.6	4.8	3.3	63	66	189	66	0.4	15	19	1.0	7	20	2.0	7.3	2.0
14	ZIMLINE/MORO BCI - 1-#-#	93	16	9	2.5	3.2	4.2	63	66	194	86	0.4	28	29	1.2	15	12	2.4	7.5	2.5
9	AMSECA/KAT BCI - 2/SYNTH2006-#-#	88	18	1	2.0	3.4	3.6	62	66	201	82	0.4	28	24	1.1	7	12	2.1	7.4	2.0
7	M37/MORO BCI - 1/SYNTH2006-#-#	90	19	3	2.5	3.6	3.5	62	67	193	71	0.4	27	24	1.0	3	7	2.6	7.1	2.0
12	ZIMLINE/KAT BCI - 25-#-#	85	20	6	2.2	2.9	3.9	63	66	172	64	0.4	22	25	1.1	21	25	1.8	7.6	2.5
18	SYNTH2008-EE55-#	79	22	1	2.2	3.2	3.08	62	65	185	75	0.5	42	43	1.3	7	13	2.1	7.9	2.0
2	ZIMLINE/KAT BCI - 10/SYNTH2006-#-#	75	24	1	1.8	3.1	2.8	62	68	162	76	0.5	32	28	1.2	9	6	2.6	8.0	2.0
Maturity group average						3.7	3.9	62	66	186	75	0.4	25	26	1.1	9	13	2.4	7.3	2.3
Entries with anthesis date between 64 - 65 days																				
3	ZIMLINE/KAT BCI - 13/SYNTH2006-#-#	99	12	2	2.1	4.0	3.9	64	68	188	80	0.5	24	22	1.1	5	10	2.1	7.1	2.0
11	ZIMLINE/KAT BCI - 13-#-#	82	20	7	1.9	3.7	2.7	65	70	220	88	0.5	34	21	1.3	12	13	2.1	6.3	3.0
Maturity group average						3.8	3.3	65	69	204	84	0.5	29	22	1.2	9	11	2.1	6.7	2.5
Entries with anthesis date > 65 days																				
23	DH04	141	2	1	2.3	6.03	5.2	72	74	215	88	0.4	10	19	1.0	5	28	2.6	5.6	2.5
24	DUMA43	117	6	5	2.3	4.05	5.2	68	70	187	77	0.4	4	8	1.0	15	31	1.6	5.2	2.0
25	LOCAL	102	10	4		3.8	4.3	75	83		60	0.5			1.7	17	1.5		3.0	
Maturity group average						4.6	4.9	72	76	201	75	0.4	7	12	1.2	7	25	1.9	5.4	2.5
Mean		100	13	5	2.34	3.91	4.01	63.3	67.2	188.2	76.1	0.43	24.7	24.2	1.11	7.5	13.6	2.3	7.1	2.3
LSD (0.05)		15	6	4	1.11	1.54	1.26	1.4	2.9	19.2	9.6	0.05	13.9	10.5	0.26	6.4	13.0	0.6	0.9	0.7
Min		75	2	0	1.38	2.76	2.73	60.0	62.8	161.8	60.0	0.4	3.5	7.8	1.0	0.8	5.6	1.5	5.2	2.0
Max		141	24	17	3.16	6.03	5.36	74.8	83.2	219.7	88.1	0.5	43.5	43.1	1.7	21.0	30.7	3.2	8.1	3.0
NumSignificantSites		2	2	2	0	1	1	4	3	1	2	1	1	3	1	2	1	1	1	1

ECA-IDTC11

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids across 21 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4A

Entry	Pedigree	Across			LOWLAND TROPICAL DRY MDS	DRY MID-ALTITUDE MDS	DRY MID-ALTITUDE LOW N	DRY MID-ALTITUDE OPT	WET LOWER MID-ALTITUDE OPT	WET UPPER MID-ALTITUDE OPT	Anth Date	ASI	Plant Height	Ear Height	Lodging		Ears/Plant	Husk Cover	Ear Rot	GLS	P.sorg	E.turc	Leaf Senes	Grain Text	Ear Aspect	Plant Aspect
		RelGY	Rank	StdDev	Across GY	Across GY	Across GY	Across GY	Across GY	Across GY					Root	Stem										
		%	Avg		t/ha	t/ha	t/ha	t/ha	t/ha	t/ha					d	d										
Entries with anthesis date between 70 - 71 days																										
8	ECAVL17-#/CML440/CML445	113	8	5	0.9	2.0	4.0	9.8	6.8	5.2	71	4	195	91	7	5	0.8	6	15	1.9	1.3	2.0	5.0	2.0	3.1	2.5
7	ECAVL16-STR-#/CML440/CML445	110	10	8	2.0	1.8	3.4	9.1	6.0	6.6	71	2	188	93	7	0	0.8	8	12	1.7	1.7	2.0	5.5	1.9	2.9	2.6
6	ECAVL16-#/CML440/CML445	106	11	3	0.9	1.5	4.3	8.5	5.7	5.3	70	8	190	96	9	1	0.8	11	9	2.2	1.8	2.3	6.0	1.6	3.1	2.8
28	DK8031	120	11	12	0.0	0.0	4.6	6.4	9.4	5.4	71	.	211	128	13	8	1.0	7	16	2.1	1.8	2.0	.	2.8	3.6	2.6
5	ECAVL18-#/P100C6-200-1-1-#-B'4/CML78-B	103	12	3	0.5	1.4	3.7	9.0	5.7	5.1	71	5	199	100	13	2	0.8	11	20	2.5	1.7	2.2	6.0	2.2	3.2	2.8
9	ECAVL18-#/CML440/CML445	102	14	9	0.9	1.6	3.7	7.1	6.5	5.3	71	3	187	91	7	2	0.8	3	20	1.7	1.4	2.3	6.0	1.9	3.1	2.7
10	NIP25-#/CML440/CML445	102	15	9	1.0	1.9	3.2	8.4	6.2	5.4	70	1	182	97	8	2	0.9	12	15	2.2	1.5	2.3	6.0	1.7	2.7	2.7
13	ECA-VL32//P100C6-200-1-1-#-B'4/CML78	88	19	7	0.6	1.4	4.2	8.3	3.9	3.7	71	14	192	96	11	2	0.8	14	23	2.3	2.1	2.5	6.3	1.9	3.2	3.1
1	ECA-VL21//P100C6-200-1-1-#-B'4/CML78	87	21	7	0.9	1.8	3.6	8.9	4.4	3.3	71	14	193	98	16	3	0.8	11	30	3.0	1.9	2.4	6.2	2.1	3.0	3.0
12	ECA-VL27//P100C6-200-1-1-#-B'4/CML78	82	22	6	0.8	1.7	3.4	8.8	3.7	3.4	71	7	195	98	16	2	0.8	11	23	2.8	1.8	2.4	6.5	1.8	3.0	2.9
Maturity group average					0.9	1.7	3.8	8.4	5.8	4.9																
Entries with anthesis date between 72 - 73 days																										
16	ECA-VL25//P300C5S1B-2-3-2#1-2-B'6/CML78	110	10	5	0.7	1.4	4.7	8.7	6.4	5.0	72	4	192	99	13	1	0.8	5	18	2.4	1.8	2.0	5.8	2.4	2.8	2.7
26	H513	104	13	7	0.7	2.5	3.4	9.0	6.8	4.8	72	5	218	117	25	7	0.8	9	23	2.6	1.9	2.4	5.0	2.2	2.8	2.8
4	ECAVL2-#/P100C6-200-1-1-#-B'4/CML78-B	96	15	6	1.0	1.6	4.1	9.1	4.8	4.1	72	5	195	98	14	2	0.8	5	23	2.5	1.9	2.2	6.0	1.9	3.1	2.7
14	ECA-VL37//P100C6-200-1-1-#-B'4/CML78	100	15	10	0.9	1.4	5.3	8.5	4.7	3.8	72	10	205	97	19	3	0.8	9	21	2.5	2.0	2.1	5.5	2.2	3.1	2.8
2	ECAVL2-#/P300C5S1B-2-3-2#1-2-B'6/CML78	93	18	10	0.5	1.8	4.8	7.7	4.6	3.5	73	14	201	107	11	3	0.8	6	28	2.4	2.1	2.2	6.0	2.1	2.9	2.7
17	ECA-VL29//P300C5S1B-2-3-2#1-2-B'6/CML78	90	19	6	0.8	2.0	4.1	7.8	4.6	3.9	73	14	197	98	9	3	0.8	3	20	2.6	1.9	2.1	5.2	2.4	3.0	2.5
11	ECA-VL24//P100C6-200-1-1-#-B'4/CML78	86	22	5	0.6	1.2	3.8	8.3	4.3	3.4	72	14	190	89	7	1	0.7	15	23	2.7	2.0	2.4	5.7	2.3	3.0	2.9
15	ECA-VL22//P300C5S1B-2-3-2#1-2-B'6/CML78	85	22	4	1.3	1.1	3.6	7.6	3.7	4.3	73	5	182	101	6	5	0.8	3	19	2.7	2.2	2.3	6.0	2.0	2.8	2.8
18	ECA-VL38//P300C5S1B-2-3-2#1-2-B'6/CML78	83	24	5	0.4	1.7	3.3	7.1	3.6	4.8	72	8	179	98	9	4	0.8	7	13	2.3	2.4	2.2	6.2	2.2	2.9	2.6
Maturity group average					0.8	1.5	4.1	8.2	4.8	4.2																
Entries with anthesis date between 74 - 75 days																										
24	NIP25-#-#-#/CML442/CML444	113	8	7	0.7	0.8	5.2	9.6	4.9	5.6	75	14	199	109	11	1	0.8	1	26	1.8	1.7	2.0	6.0	2.2	3.0	2.8
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	0.7	1.1	2.5	9.6	5.7	6.3	74	14	199	104	11	2	0.8	3	13	1.9	2.0	2.2	5.0	2.1	2.7	2.9
3	ECAVL17-#/P300C5S1B-2-3-2#1-2-B'6/CML78	98	13	7	0.4	0.8	4.3	9.3	4.6	4.4	74	14	204	97	4	1	0.7	9	15	2.6	1.9	2.2	4.8	2.6	2.9	2.7
25	ECA-VL29	95	16	6	0.4	1.0	4.2	8.3	5.4	3.8	75	14	208	115	14	3	0.8	8	39	1.9	1.5	2.0	5.0	2.3	3.1	2.8
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	0.8	1.3	3.3	8.5	5.2	5.0	74	8	203	111	10	1	0.8	4	17	1.8	1.6	2.1	4.8	2.0	2.8	2.7
Maturity group average					0.6	1.0	3.9	9.1	5.2	5.0																
Entries with anthesis date = 76 days																										
27	WH504	137	2	1	0.7	1.0	4.7	10.3	7.0	8.6	76	14	234	124	13	2	0.8	1	18	1.5	1.4	1.9	4.5	2.6	2.3	2.7
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	0.4	1.2	3.5	9.6	5.2	5.8	76	14	204	105	7	2	0.8	3	18	1.4	1.5	1.9	4.0	2.9	2.9	2.6
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	0.9	1.5	3.8	7.8	5.1	5.5	76	14	198	108	11	1	0.8	3	18	1.5	1.4	1.8	4.3	2.8	3.0	2.6
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	0.6	1.2	2.8	10.1	5.0	4.7	76	14	208	116	18	2	0.8	4	21	1.6	1.6	2.0	4.2	2.6	2.7	2.8
Maturity group average					0.6	1.2	3.7	9.5	5.6	6.1																
Mean		100	14	7	0.78	1.42	3.91	8.62	5.34	4.86	72.7	9.5	198.1	102.8	11.4	2.5	0.81	6.9	19.9	2.2	1.8	2.2	5.5	2.2	3.0	2.7
LSD (0.05)		12	5	3	0.68	1.01	1.35	1.33	1.31	1.52	0.8	7.5	14.5	8.8	5.3	2.8	0.08	5.5	11.1	0.5	0.3	0.3	1.2	0.2	0.3	0.3
Min		82	2	1	0.38	0.78	2.49	6.36	3.64	3.33	70.0	1.4	179.4	88.9	4.1	0.1	0.7	0.6	8.5	1.4	1.3	1.8	4.0	1.6	2.3	2.5
Max		137	24	12	2.03	2.51	5.33	10.29	9.41	8.55	76.2	14.1	234.2	127.5	24.9	7.5	1.0	15.4	38.7	3.0	2.4	2.5	6.5	2.9	3.6	3.1
NumSignificantSites		4	4	4	0	0	1	1	1	1	13	1	3	6	3	2	3	4	2	3	4	2	1	7	5	4

17

Entry	Pedigree	RelGY	Across		LOWLAND TROPICAL DRY MDS	DRY MID-ALTITUDE MDS	DRY MID-ALTITUDE Low N	DRY MID-ALTITUDE OPT	WET LOWER MID-ALTITUDE OPT	WET UPPER MID-ALTITUDE OPT
			Rank		Chiredzi Zim	Kiboko Ken	Kiboko Ken	Melkasa Eth	Kutus Ken	Kakamega Ken
			Avg	StdDev	GY	GY	GY	GY	GY	GY
					t/ha	t/ha	t/ha	t/ha	t/ha	t/ha
Entries with anthesis date between 70 - 71 days										
8	ECAVL17-#/CML440/CML445	113	8	5	0.9	2.0	4.0	9.8	6.8	5.2
7	ECAVL16-STR-#/CML440/CML445	110	10	8	2.0	1.8	3.4	9.1	6.0	6.6
6	ECAVL16-#/CML440/CML445	106	11	3	0.9	1.5	4.3	8.5	5.7	5.3
28	DK8031	120	11	12	0.0	0.0	4.6	6.4	9.4	5.4
5	ECAVL18-#/P100C6-200-1-1-##-B*4/CML78-B	103	12	3	0.5	1.4	3.7	9.0	5.7	5.1
9	ECAVL18-#/CML440/CML445	102	14	9	0.9	1.6	3.7	7.1	6.5	5.3
10	NIP25-#/CML440/CML445	102	15	9	1.0	1.9	3.2	8.4	6.2	5.4
13	ECA-VL32/P100C6-200-1-1-##-B*4/CML78	88	19	7	0.6	1.4	4.2	8.3	3.9	3.7
1	ECA-VL21/P100C6-200-1-1-##-B*4/CML78	87	21	7	0.9	1.8	3.6	8.9	4.4	3.3
12	ECA-VL27/P100C6-200-1-1-##-B*4/CML78	82	22	6	0.8	1.7	3.4	8.8	3.7	3.4
Maturity group average					0.9	1.7	3.8	8.4	5.8	4.9
Entries with anthesis date between 72 - 73 days										
16	ECA-VL25/P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	0.7	1.4	4.7	8.7	6.4	5.0
26	H513	104	13	7	0.7	2.5	3.4	9.0	6.8	4.8
4	ECAVL2-#/P100C6-200-1-1-##-B*4/CML78-B	96	15	6	1.0	1.6	4.1	9.1	4.8	4.1
14	ECA-VL37/P100C6-200-1-1-##-B*4/CML78	100	15	10	0.9	1.4	5.3	8.5	4.7	3.8
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B/CML78	93	18	10	0.5	0.8	4.8	7.7	4.6	3.5
17	ECA-VL29/P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	0.8	2.0	4.1	7.8	4.6	3.9
11	ECA-VL24/P100C6-200-1-1-##-B*4/CML78	86	22	5	0.6	1.2	3.8	8.3	4.3	3.4
15	ECA-VL22/P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	1.3	1.1	3.6	7.6	3.7	4.3
18	ECA-VL38/P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	0.4	1.7	3.3	7.1	3.6	4.8
Maturity group average					0.8	1.5	4.1	8.2	4.8	4.2
Entries with anthesis date between 74 - 75 days										
24	NIP25-##-#/CML442/CML444	113	8	7	0.7	0.8	5.2	9.6	4.9	5.6
23	ECAVL18-##-#/CML442/CML444	103	12	12	0.7	1.1	2.5	9.6	5.7	6.3
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	0.4	0.8	4.3	9.3	4.6	4.4
25	ECA-VL29	95	16	6	0.4	1.0	4.2	8.3	5.4	3.8
21	ECAVL16-##-#/CML442/CML444	96	17	5	0.8	1.3	3.3	8.5	5.2	5.0
Maturity group average					0.6	1.0	3.9	9.1	5.2	5.0
Entries with anthesis date = 76 days										
27	WH504	137	2	1	0.7	1.0	4.7	10.3	7.0	8.6
22	ECAVL17-##-#/CML442/CML444	104	11	8	0.4	1.2	3.5	9.6	5.2	5.8
19	ECAVL1-##-#/CML442/CML444	99	14	7	0.9	1.5	3.8	7.8	5.1	5.5
20	ECAVL2-##-#/CML442/CML444	94	16	10	0.6	1.2	2.8	10.1	5.0	4.7
Maturity group average					0.6	1.2	3.7	9.5	5.6	6.1
Mean		100	14	7	0.78	1.42	3.91	8.62	5.34	4.86
LSD (0.05)		12	5	3	0.68	1.01	1.40	1.33	1.31	1.52
Min		82	2	1	0.38	0.78	2.49	6.36	3.64	3.33
Max		137	24	12	2.03	2.51	5.33	10.29	9.41	8.55
NumSignificantSites		4	4	4	0	0	1	1	1	1

5. Individual Site Results (Agronomic traits)

ECA-ILHT11

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Embu, Kenya OPT											Kiboko, Kenya MDS									
		Across			GY	Anth	Days to	ASI	Husk	Ear	P.sorg	Ear	Plant	Grain Yield		Anth	Days to	ASI	Lodging	Leaf	Ear	Plant
		RelGY	Rank	StdDev	FW	Date	Silk	d	d	%	%	1-5	1-5	1-5	GW	FW	Date	Silk	d	Stem	Senes	Aspect
%	Avg		t/ha	d	d	d	%	%	1-5	1-5	1-5	t/ha	t/ha	d	d	d	%	1-10	1-5	1-5		
Entries with anthesis date between 71 - 72 days																						
21	CML488/CZL00003/CKL05019	103	20	12	7.2	69	70	1	1.5	16.6	1.5	2.2	4.3	1.3	1.4	65	73	8	54	0.6	3.5	3.5
27	CML202/CML395/CKL08085	92	25	10	5.3	68	71	3	1.4	22.7	1.8	3.0	3.4	3.0	3.0	64	68	4	70	0.8	2.8	2.7
34	H513	95	27	8	7.1	71	71	1	5.0	10.7	1.7	2.7	4.4	2.7	2.9	66	69	4	55	0.7	3.0	3.1
37	DK8031	81	31	11	3.9	67	71	4	5.2	16.9	2.0	4.0	3.9	2.1	2.4	65	72	8	48	0.7	3.8	2.9
Maturity group average					5.9	68.7	70.7	2.2	3.3	16.7	1.7	3.0	4.0	2.3	2.4	64.8	70.5	5.8	56.4	0.7	3.3	3.0
Entries with anthesis date between 73 - 74 days																						
6	CML442/CML444/CKL08002	119	12	8	6.7	71	71	0	2.2	10.5	1.5	3.0	3.9	3.7	3.6	68	70	2	54	0.6	2.5	3.1
16	CML442/CML445/CKL05022	115	14	8	7.6	72	71	0	3.1	11.3	1.5	2.7	4.4	3.7	3.6	69	70	2	74	0.7	2.5	3.0
15	CML442/CML445/CKL05017	103	17	12	7.6	71	70	-1	0.2	11.7	1.5	2.5	4.0	3.6	3.5	67	69	3	76	0.7	2.3	3.1
11	CML312/CML442/CKL05015	97	18	11	7.1	72	73	2	4.9	5.8	1.5	3.0	3.6	3.4	3.3	67	70	3	77	0.7	2.3	2.8
25	CML444/CML489/CKL05019	111	18	11	7.5	73	73	-1	1.7	4.7	1.5	1.7	4.2	2.2	2.2	68	73	6	55	0.6	3.3	2.7
8	CML442/CML444/CKL08063	104	19	11	5.6	70	71	0	4.9	13.8	2.0	3.0	3.8	3.0	3.0	66	70	5	62	0.5	3.0	2.8
19	CZL00003/CML444/CKL05019	98	20	12	9.3	69	72	3	1.2	0.0	1.6	1.5	4.3	2.0	2.2	68	72	5	67	0.6	3.3	3.1
7	CML442/CML444/CKL08006	112	21	10	5.1	71	72	1	2.7	10.7	1.5	3.2	3.3	3.2	3.2	69	71	2	55	0.5	3.0	2.8
20	CZL00003/CML444/CKL05017	95	22	8	6.8	71	72	1	2.9	5.0	1.5	2.5	4.0	2.5	2.6	68	73	5	71	0.7	2.8	2.9
31	CKL05005/CKL05017/CML442/CML444	101	22	7	5.7	73	72	-1	4.5	14.2	1.5	3.0	3.9	3.1	3.0	68	71	3	54	0.6	3.0	2.6
33	CKL05005/CKL05022/CML442/CML444	99	22	10	6.3	74	74	0	4.9	9.3	1.5	3.0	4.1	3.3	3.4	68	69	1	62	0.5	2.8	2.6
40	LOCAL	87	27	14	4.2	68	71	3	0.0	17.9	2.0	3.0	3.3	2.1	1.9	69	74	6	51	0.7	4.0	3.4
22	CML488/CZL00003/CKL05009	87	28	8	4.3	70	72	2	4.0	22.6	1.8	3.0	4.3	2.2	2.2	67	70	4	79	0.7	3.3	3.8
Maturity group average					6.5	71.2	72.0	0.9	2.9	10.6	1.6	2.7	3.9	2.9	2.9	67.5	70.8	3.3	64.2	0.6	2.9	3.0
Entries with anthesis date between 75 - 76 days																						
13	CML442/CML445/CKL05003	112	9	11	8.0	75	78	3	4.2	11.2	1.7	3.0	3.9	4.1	4.1	68	73	5	86	0.5	2.0	3.0
29	CML442/CML444/CKL05003/CKL05017	119	12	9	7.0	74	77	2	1.3	2.6	1.5	2.7	4.1	3.8	3.7	69	72	3	60	0.5	2.0	2.6
10	CML312/CML442/CKL05003	108	12	14	5.8	74	75	1	7.1	5.3	2.0	2.7	4.2	3.9	3.9	68	73	5	69	0.4	2.3	2.2
12	CML312/CML442/CKL05022	116	14	10	8.2	74	74	-1	3.7	17.5	1.5	2.3	4.2	3.2	3.2	69	70	2	74	0.7	2.8	2.6
4	CML442/CML444/CKL05018	111	16	7	6.8	74	75	1	2.0	6.0	1.5	2.3	4.3	3.1	3.1	69	72	3	77	0.6	2.5	3.8
3	CML442/CML444/CKL05017	99	18	13	6.1	73	73	-1	1.0	6.9	1.5	2.5	4.1	2.5	2.5	69	71	2	79	0.6	2.8	2.7
18	CZL00003/CML444/CKL05022	116	18	12	7.2	73	74	0	6.3	12.3	1.7	2.5	4.1	3.1	3.1	69	71	2	78	0.7	2.8	3.1
35	WH403	105	19	11	7.0	72	74	2	4.9	13.4	1.5	2.5	3.5	2.0	2.0	69	72	3	76	0.6	3.3	3.0
5	CML442/CML444/CKL05022	105	19	11	7.9	75	75	0	1.2	11.6	1.5	2.3	4.0	3.1	3.0	70	71	1	80	0.6	2.5	3.4
2	CML442/CML444/CKL05015	102	20	11	8.2	75	76	0	0.0	0.6	1.5	2.5	4.0	4.1	3.9	69	71	2	84	0.6	2.5	2.8
14	CML442/CML445/CKL05004	93	21	10	6.3	75	75	0	7.9	24.0	2.0	3.2	3.7	3.9	4.0	69	71	2	96	0.7	2.3	3.1
28	CKL05003/CKL05005/CML442/CML444	95	22	10	6.1	74	75	1	0.0	12.7	1.5	3.0	3.4	2.8	2.9	69	73	5	56	0.4	3.0	2.9
24	CML444/CML489/CKL05017	94	24	9	6.2	74	73	-1	2.2	7.6	1.5	2.8	3.7	2.5	2.3	69	72	3	82	0.6	3.0	3.2
9	CML202/CML395/CKL05024	96	24	9	5.8	75	78	2	1.5	5.8	1.5	2.0	2.7	2.2	2.1	68	73	5	44	0.6	3.3	2.6
36	WH505	92	25	9	5.3	74	75	1	1.6	21.9	1.8	3.0	3.9	3.2	3.2	69	72	4	66	0.5	2.5	2.8
32	CKL05005/CKL05018/CML442/CML444	87	29	7	5.1	73	74	0	0.0	21.3	1.8	3.0	3.5	3.2	3.3	68	71	3	46	0.6	3.0	2.7
39	HYTECH 1100	61	34	6	5.4	73	75	2	12.5	35.0	1.7	4.0	3.8	3.0	3.2	68	71	3	72	0.6	2.8	2.1

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Embu, Kenya OPT											Kiboko, Kenya MDS									
		Across			GY	Anth	Days to	ASI	Husk	Ear	P.sorg	Ear	Plant	Grain Yield		Anth	Days to	ASI	Lodging	Leaf	Ear	Plant
		RelGY	Rank	StdDev	FW	Date	Silk		Cover	Rot	Aspect	Aspect	GW	FW	Date	Silk		Stem	Senes	Aspect	Aspect	
	%	Avg		t/ha	d	d	d	%	%	1-5	1-5	1-5	t/ha	t/ha	d	d	d	%	1-10	1-5	1-5	
38	HYTECH 2031	58	35	8	5.6	74	74	0	3.2	24.4	2.0	4.0	4.2	2.9	3.1	69	71	2	79	0.7	3.3	2.3
Maturity group average					6.6	74.1	74.9	0.7	3.4	13.3	1.7	2.8	3.8	3.1	3.2	68.6	71.5	2.9	72.2	0.6	2.7	2.8
Entries with anthesis date between 77 - 78 days																						
30	CKL05003/CKL05022/CML442/CML444	115	13	12	8.3	76	77	1	3.4	10.4	1.5	2.5	4.3	3.9	3.8	71	72	1	73	0.6	2.5	3.4
17	CZL00003/CML444/CKL05003	110	15	12	6.3	76	80	4	2.0	13.8	2.3	2.8	3.5	3.3	3.2	69	75	7	76	0.6	2.5	2.7
23	CML444/CML489/CKL05003	106	17	11	7.5	75	80	4	1.9	2.9	2.5	2.7	4.3	3.6	3.5	70	75	5	77	0.5	2.3	2.3
1	CML442/CML444/CKL05004	102	20	12	7.3	77	77	1	0.8	3.6	2.0	2.8	4.3	3.9	4.1	70	72	2	89	0.6	2.5	3.0
26	CML444/CML489/CKL05022	100	21	12	8.4	75	74	-1	2.1	7.3	1.5	2.3	4.5	3.3	3.4	71	71	1	87	0.7	2.5	3.1
Maturity group average					7.6	75.7	77.6	1.8	2.0	7.6	1.9	2.6	4.2	3.6	3.6	69.9	72.7	2.8	80.3	0.6	2.5	2.9
Mean		100	21	10	6.58	72.8	73.9	1.1	3.0	12.1	1.7	2.8	3.9	3.05	3.05	68.0	71.3	3.3	69.0	0.6	2.8	2.9
LSD (0.05)		13	6	2	1.97	2.1	1.8	2.2	4.6	12.8	0.4	0.8	0.7	1.09	1.04	1.4	2.6	2.7	23.7	0.1	0.8	0.7
Min		58	9	6	3.86	67.2	69.8	-1.4	0.0	0.0	1.5	1.5	2.7	1.3	1.4	64.0	68.0	0.5	44.0	0.4	2.0	2.1
Max		119	35	14	9.29	76.5	79.5	4.1	12.5	35.0	2.5	4.0	4.5	4.1	4.1	70.5	75.0	8.0	95.5	0.8	4.0	3.8
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

ECA-ILHT11

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kiboko, Kenya Low N										Boma Ng'ombe, Tanzania OPT					Chiredzi, Zimbabwe MDS					Mwele, Tanzania OPT				
		Across			Grain Yield		Anth Date	Plant Height	Ear Height	Husk Cover	Ear Rot	Grain Text	Ear Aspect	GY	Anth Date	Days to Silk	Grain Text	Grain Moist	GY	Anth Date	Lodging Root	Leaf Senes	Num Plants	GY	Husk Cover	Grain Text
		RelGY	Rank	StdDev	GW	FW																				
Entries with anthesis date between 71 - 72 days																										
21	CML488/CZL0003/CKL05019	103	20	12	2.9	3.0	60	155	70.5	1.9	20.0	2.0	3.1	0.8	64	66.0	1.5	12.7	1.5	94	19.7	6.3	33	3.8	0.0	1.4
27	CML202/CML395/CKL08085	92	25	10	3.2	3.0	56	144	65.5	4.6	16.2	1.9	3.5	1.3	61	63.5	2.3	12.5	0.9	94	19.9	5.3	30	2.8	0.0	2.1
34	H513	95	27	8	2.8	2.5	57	155	77.3	1.3	14.9	2.0	3.3	1.1	62	65.0	2.0	12.0	1.5	94	14.7	6.3	34	3.0	0.0	2.1
37	DK8031	81	31	11	3.9	3.6	57	163	83.9	9.7	17.1	3.0	2.7	0.7	61	64.5	3.7	10.9	1.0	93	25.7	6.6	31	3.4	0.0	3.2
Maturity group average					3.2	3.0	58	154.2	74.3	4.4	17.1	2.2	3.1	1.0	61.9	64.8	2.4	12.0	1.3	94	20.0	6.1	32	3.3	0.0	2.2
Entries with anthesis date between 73 - 74 days																										
6	CML442/CML444/CKL08002	119	12	8	3.2	3.0	59	138	61	29	18	3.0	3.0	1.6	61	65	3.0	15.0	1.8	95	21.0	5.9	31	1.1	0	2.9
16	CML442/CML445/CKL05022	115	14	8	2.5	2.3	63	144	65	3	15	2.5	3.0	1.8	63	67	2.2	16.3	1.3	97	17.9	6.1	34	3.3	0	2.5
15	CML442/CML445/CKL05017	103	17	12	2.8	2.3	57	158	75	0	7	2.0	3.3	0.8	63	66	2.0	14.6	1.1	96	22.3	5.6	32	2.2	0	1.6
11	CML312/CML442/CKL05015	97	18	11	3.4	3.0	58	160	77	2	5	3.1	2.7	1.7	64	67	2.5	15.2	0.4	96	17.7	5.5	34	2.4	0	1.8
25	CML444/CML489/CKL05019	111	18	11	2.3	2.7	63	164	74	1	21	2.1	3.4	0.9	63	66	1.5	16.4	0.6	97	11.8	5.6	34	2.9	0	1.3
8	CML442/CML444/CKL08063	104	19	11	3.7	3.3	58	161	73	9	14	2.9	2.9	1.8	64	67	2.8	13.1	1.4	95	22.7	5.4	33	3.8	0	2.8
19	CZL00003/CML444/CKL05019	98	20	12	3.2	3.6	58	176	90	3	8	1.9	2.8	0.8	63	66	1.5	15.6	0.7	97	20.6	6.1	34	3.0	0	1.1
7	CML442/CML444/CKL08006	112	21	10	2.8	2.9	60	148	70	11	29	2.5	3.2	1.4	65	68	3.2	14.5	2.4	95	23.9	5.8	23	3.3	1	3.2
20	CZL00003/CML444/CKL05017	95	22	8	3.1	2.8	60	153	75	1	17	2.0	2.8	0.8	66	70	1.5	11.6	0.7	97	19.4	6.9	34	4.1	0	2.1
31	CKL05005/CKL05017/CML442/CML444	101	22	7	2.8	2.7	60	141	64	2	7	3.0	2.8	1.3	63	66	2.0	13.8	1.1	97	19.4	5.5	34	3.8	0	2.4
33	CKL05005/CKL05022/CML442/CML444	99	22	10	4.0	4.0	60	174	89	2	8	2.0	2.4	1.5	63	66	2.9	15.6	0.5	98	10.3	6.3	34	1.3	0	2.5
40	LOCAL	87	27	14	3.4	3.2	61	163	80	1	10	2.5	3.2	0.6	65	70	3.1	15.5	0.6	95	20.7	7.0	32	3.2	0	3.0
22	CML488/CZL00003/CKL05009	87	28	8	2.6	2.2	60	136	66	0	13	2.0	3.0	1.2	63	66	1.2	13.5	0.7	98	23.5	6.8	34	2.1	0	1.3
Maturity group average					3.1	2.9	59.8	155.1	73.8	4.8	13.1	2.4	3.0	1.2	63.8	67.1	2.3	14.7	1.0	96	19.3	6.0	32	2.8	0.1	2.2
Entries with anthesis date between 75 - 76 days																										
13	CML442/CML445/CKL05003	112	9	11	4.2	5.1	60	157	77	0	13	3.0	2.4	1.2	65	69	2.3	18.4	0.3	98	18.5	6.4	36	3.4	3	2.8
29	CML442/CML444/CKL05003/CKL05017	119	12	9	3.8	3.7	62	151	76	4	8	2.9	2.5	2.0	60	63	2.1	16.3	0.6	99	20.9	5.7	34	1.9	0	2.5
10	CML312/CML442/CKL05003	108	12	14	4.2	4.3	62	156	74	5	8	3.0	2.3	0.6	63	66	1.5	19.3	0.1	99	17.9	5.5	34	3.0	2	2.8
12	CML312/CML442/CKL05022	116	14	10	2.9	2.8	61	155	79	1	10	2.5	3.2	1.2	64	67	2.2	15.4	0.5	98	20.6	6.3	34	1.9	0	2.9
4	CML442/CML444/CKL05018	111	16	7	3.0	3.0	63	141	65	0	17	2.0	3.2	1.2	62	65	2.2	14.3	1.5	97	16.7	5.8	33	3.6	0	2.5
3	CML442/CML444/CKL05017	99	18	13	3.7	3.5	60	148	75	4	6	2.0	2.6	1.0	65	68	2.0	13.8	0.6	97	17.9	6.0	34	3.3	0	2.0
18	CZL00003/CML444/CKL05022	116	18	12	1.7	1.7	63	140	63	4	19	2.0	3.6	0.9	66	69	1.7	14.3	2.4	99	21.3	6.2	33	2.1	0	2.2
35	WH403	105	19	11	3.6	3.7	60	160	77	1	10	2.5	2.4	1.2	64	67	1.6	14.0	1.1	97	11.8	6.3	34	2.8	0	1.6
5	CML442/CML444/CKL05022	105	19	11	2.6	2.3	62	162	79	0	7	3.1	3.2	1.3	65	69	2.3	13.2	0.6	99	16.5	6.2	34	2.7	0	3.0
2	CML442/CML444/CKL05015	102	20	11	3.3	3.1	63	152	70	5	10	2.5	2.7	1.0	66	70	2.0	16.7	0.6	100	16.5	5.9	34	3.3	0	2.9
14	CML442/CML445/CKL05004	93	21	10	2.7	3.2	61	138	62	2	12	3.0	3.4	1.3	66	70	1.9	15.3	0.7	96	21.3	5.3	33	2.5	0	2.6
28	CKL05003/CKL05005/CML442/CML444	95	22	10	3.0	3.3	64	140	61	5	10	3.0	2.8	1.4	66	70	2.5	14.5	0.7	99	19.1	5.4	34	2.6	0	2.6
24	CML444/CML489/CKL05017	94	24	9	1.2	1.0	62	134	60	6	9	2.0	3.7	1.1	66	69	1.5	16.2	0.9	98	11.8	6.1	34	2.5	0	2.2
9	CML202/CML395/CKL05024	96	24	9	1.5	2.1	63	129	58	7	15	2.0	3.5	1.6	64	67	1.7	14.5	0.8	97	22.4	6.2	34	3.1	0	2.6
36	WH505	92	25	9	1.7	1.8	67	131	54	11	10	2.5	3.4	1.2	66	70	2.5	17.1	0.8	99	20.6	5.7	34	1.6	0	2.6
32	CKL05005/CKL05018/CML442/CML444	87	29	7	2.1	2.1	61	120	49	11	16	2.0	3.7	1.4	65	68	2.0	13.2	0.6	99	18.2	5.8	33	2.7	0	2.4
39	HYTECH 1100	61	34	6	1.9	2.0	62	146	62	19	17	2.5	3.6	1.3	65	69	3.0	11.3	0.3	95	14.7	6.3	34	3.7	0	3.6
38	HYTECH 2031	58	35	8	1.2	1.1	65	144	53	21	51	2.6	4.4	0.9	69	72	3.3	12.2	0.3	96	16.2	6.3	34	2.8	0	3.3

ECA-ILHT11

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kiboko, Kenya Low N											Boma Ng'ombe, Tanzania OPT				Chiredzi, Zimbabwe MDS					Mwele, Tanzania OPT				
		Across		Grain Yield		Anth Date	Plant Height	Ear Height	Husk Cover	Ear Rot	Grain Text	Ear Aspect	GY	Anth Date	Days to Silk	Grain Text	Grain Moist	GY	Anth Date	Lodging Root	Leaf Senes	Num Plants	GY	Husk Cover	Grain Text	
		RelGY	Rank	GW	FW																					l/ha
Maturity group average					2.7	2.8	62.3	144.7	66.2	5.9	13.8	2.5	3.1	1.2	64.9	68.3	2.1	15.0	0.8	98	17.9	6.0	34	2.7	0.2	2.6
Entries with anthesis date between 77 - 78 days																										
30	CKL05003/CKL05022/CML442/CML444	115	13	12	3.4	3.5	63	142	68	3	7	2.5	2.6	1.4	64	67	2.0	18.2	1.2	99	15.0	5.4	34	2.7	0	2.6
17	CZL00003/CML444/CKL05003	110	15	12	4.4	4.9	63	161	81	0	4	3.0	2.6	0.9	69	74	2.0	17.7	0.3	101	19.1	5.8	34	3.2	0	2.5
23	CML444/CML489/CKL05003	106	17	11	3.6	4.4	64	151	73	0	6	3.1	2.4	0.9	73	73	1.5	18.4	0.1	103	21.3	5.3	33	1.6	0	2.1
1	CML442/CML444/CKL05004	102	20	12	3.7	3.7	63	155	75	2	6	2.6	3.0	1.8	62	66	2.0	16.1	0.6	100	19.1	6.4	34	2.3	1	2.6
26	CML444/CML489/CKL05022	100	21	12	2.9	2.6	63	158	77	0	5	2.5	2.9	0.6	67	70	1.8	13.6	1.1	97	22.4	6.1	34	3.1	0	2.5
Maturity group average					3.6	3.8	63.0	153.4	74.4	1.0	5.8	2.7	2.7	1.1	67.1	69.8	1.9	16.8	0.7	100.0	19.4	5.8	34	2.6	0.2	2.5
Mean		100	21	10	2.97	2.98	61.1	150.1	70.5	4.7	12.9	2.5	3.0	1.19	64.5	67.7	2.2	14.8	0.88	97.3	18.8	6.0	33.1	2.79	0.2	2.4
LSD (0.05)		13	6	2	1.50	1.45	4.0	19.4	15.6	7.6	14.3	0.8	0.9	1.02	2.5	2.8	0.8	2.1	0.96	1.9	6.8	0.8	2.5	1.44	1.0	0.6
Min		58	9	6	1.16	1.01	56.5	120.3	49.2	0.0	4.5	1.9	2.3	0.56	60.08	63.0	1.2	10.9	0.1	93.2	10.3	5.3	23.0	1.1	0.0	1.1
Max		119	35	14	4.39	5.07	66.7	176.5	89.9	28.6	51.0	3.1	4.4	1.97	73.1	73.5	3.7	19.3	2.4	102.8	25.7	7.0	35.5	4.1	2.5	3.6
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kibos, Kenya OPT															Thika, Kenya OPT					Kutus, Kenya OPT			
		Across			GY	Anth	Days to	Plant	Lodging		Husk	GLS	P.sorg	Grain	Num	Ear	Plant	GY	Anth	Days to	Lodging	Husk	Ear	GY	Plant
		RelGY	Rank	StdDev	FW	Date	Silk	Height	Root	Stem	Cover	1-5	1-5	%	#	1-5	1-5	t/ha	d	d	%	%	%	t/ha	1.5
Entries with anthesis date between 71 - 72 days																									
21	CML488/CZL00003/CKL05019	103	20	12	5.1	62	64	262	19	7	9	1.6	2.2	14.6	38	3.5	2.5	7.9	83	84	0	9	0	3.0	1.9
27	CML202/CML395/CKL08085	92	25	10	6.0	58	60	246	7	6	3	1.9	2.1	14.4	38	2.9	2.8	5.1	83	85	3	5	0	2.1	1.9
34	H513	95	27	8	6.0	61	63	272	56	13	6	2.5	2.1	16.7	35	2.4	2.8	6.3	83	84	3	13	0	2.2	2.5
37	DK8031	81	31	11	5.1	59	64	246	3	6	35	1.4	2.2	13.3	38	4.1	3.0	3.9	77	79	6	42	4	2.7	1.6
Maturity group average					5.5	59.8	62.6	256.4	21.4	7.8	13.1	1.9	2.2	14.7	37	3.2	2.7	5.8	81.8	83.1	3.2	17.1	1.1	2.5	2.0
Entries with anthesis date between 73 - 74 days																									
6	CML442/CML444/CKL08002	119	12	8	6.5	62	63	249	6	16	13	1.6	2.0	13.7	38	2.9	2.5	7.5	83	85	1	13	1	3.0	1.0
16	CML442/CML445/CKL05022	115	14	8	6.2	62	63	257	22	22	11	1.5	1.7	15.2	38	2.8	2.5	5.9	88	89	4	9	0	4.1	2.6
15	CML442/CML445/CKL05017	103	17	12	5.8	62	62	233	11	19	17	1.8	1.5	16.1	36	3.1	2.3	6.5	83	84	9	4	0	3.2	2.1
11	CML312/CML442/CKL05015	97	18	11	6.7	61	62	257	16	23	21	1.8	2.3	15.6	36	2.0	2.0	5.7	82	84	0	13	2	1.8	2.0
25	CML444/CML489/CKL05019	111	18	11	6.0	62	64	250	25	5	3	1.6	2.1	14.9	37	2.3	3.0	8.7	85	86	3	3	0	3.1	2.5
8	CML442/CML444/CKL08063	104	19	11	6.4	60	61	248	19	1	35	1.6	1.8	15.6	38	3.6	3.5	6.1	81	84	1	9	2	3.0	1.6
19	CZL00003/CML444/CKL05019	98	20	12	5.6	62	66	265	36	8	5	1.7	2.0	16.3	38	2.8	3.0	3.7	82	86	1	0	3	3.1	2.7
7	CML442/CML444/CKL08006	112	21	10	6.2	61	63	243	10	3	48	1.6	2.3	14.2	37	3.3	2.5	4.4	82	85	4	17	5	3.2	1.0
20	CZL00003/CML444/CKL05017	95	22	8	6.0	61	63	268	7	38	26	1.5	1.4	14.6	37	2.7	2.3	5.0	85	86	0	10	3	2.4	1.9
31	CKL05005/CKL05017/CML442/CML444	101	22	7	6.5	62	61	241	12	4	11	1.7	1.7	15.5	37	2.8	2.5	4.9	82	85	2	4	0	2.9	2.0
33	CKL05005/CKL05022/CML442/CML444	99	22	10	6.4	62	64	257	23	7	11	1.5	1.7	14.0	38	2.7	3.0	6.2	85	87	1	8	0	3.8	2.5
40	LOCAL	87	27	14	5.4	63	66	265	26	14	10	2.5	3.3	14.4	35	3.5	2.5	6.3	82	83	3	3	1	3.2	3.0
22	CML488/CZL00003/CKL05009	87	28	8	5.7	63	64	269	13	36	22	1.4	1.6	15.7	36	3.8	3.0	5.0	82	83	15	9	1	3.1	1.5
Maturity group average					6.1	61.8	63.2	253.9	17.5	15.0	17.7	1.7	2.0	15.0	37	3.0	2.7	5.8	83.3	85.1	3.4	7.6	1.5	3.1	2.0
Entries with anthesis date between 75 - 76 days																									
13	CML442/CML445/CKL05003	112	9	11	6.8	63	64	251	19	9	10	2.0	1.5	17.0	36	3.0	2.0	7.6	87	88	0	7	0	2.5	1.5
29	CML442/CML444/CKL05003/CKL05017	119	12	9	7.3	64	64	258	6	5	4	1.4	1.6	17.3	37	2.6	2.3	7.8	85	86	1	7	0	3.3	1.0
10	CML312/CML442/CKL05003	108	12	14	8.3	63	65	259	14	6	31	1.9	2.4	17.6	37	1.8	2.5	7.6	86	88	1	20	0	3.1	2.5
12	CML312/CML442/CKL05022	116	14	10	6.5	63	63	263	18	9	11	1.6	1.4	15.7	38	2.2	2.5	8.3	86	86	5	9	0	1.8	2.6
4	CML442/CML444/CKL05018	111	16	7	6.5	65	65	259	28	38	17	1.4	1.7	15.3	37	2.7	2.5	6.9	86	87	4	16	0	3.0	1.5
3	CML442/CML444/CKL05017	99	18	13	7.1	62	62	248	5	21	20	1.5	1.5	16.3	38	2.4	2.0	6.2	85	86	2	8	0	1.9	2.1
18	CZL00003/CML444/CKL05022	116	18	12	5.9	63	64	273	14	39	24	1.6	1.7	15.5	38	2.8	2.7	5.1	85	87	6	3	0	3.8	1.9
35	WH403	105	19	11	6.0	62	64	249	15	14	21	1.7	2.0	14.9	38	2.4	2.0	5.0	86	88	4	4	1	3.2	2.5
5	CML442/CML444/CKL05022	105	19	11	6.4	65	65	262	25	26	8	1.5	1.7	15.8	38	2.7	2.5	6.6	85	85	6	2	0	2.8	2.0
2	CML442/CML444/CKL05015	102	20	11	6.2	65	66	273	27	39	11	1.8	1.8	16.5	37	2.9	3.0	6.3	84	87	2	0	1	3.2	1.9
14	CML442/CML445/CKL05004	93	21	10	6.1	62	64	251	10	18	8	1.8	1.8	16.0	36	2.7	2.2	7.1	85	86	1	9	1	3.0	2.0
28	CKL05003/CKL05005/CML442/CML444	95	22	10	5.7	63	64	261	22	17	7	2.1	2.0	15.8	37	2.9	1.8	5.4	83	84	2	5	2	1.7	2.0
24	CML444/CML489/CKL05017	94	24	9	5.8	63	63	251	7	11	18	1.5	1.7	15.8	37	2.8	2.5	5.9	84	85	2	7	0	3.5	1.4
9	CML202/CML395/CKL05024	96	24	9	5.2	62	63	256	4	9	4	1.5	2.0	16.5	38	3.4	2.0	5.2	85	88	3	9	1	3.3	1.4
36	WH505	92	25	9	5.6	65	65	257	19	7	11	1.5	2.3	14.8	36	3.2	2.3	6.6	85	86	1	8	1	2.1	2.4
32	CKL05005/CKL05018/CML442/CML444	87	29	7	5.6	63	64	244	9	12	9	1.6	1.7	16.0	35	3.4	2.5	5.7	83	85	3	13	0	2.1	2.4
39	HYTECH 1100	61	34	6	5.8	65	66	275	61	9	6	1.9	2.5	15.3	37	2.9	3.3	4.4	87	89	3	15	6	3.9	1.0
38	HYTECH 2031	58	35	8	4.3	66	66	287	72	22	5	1.7	2.6	15.1	31	3.8	3.2	3.4	88	89	9	5	0	3.4	1.4

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kibos, Kenya OPT														Thika, Kenya OPT					Kutus, Kenya OPT				
		Across RelGY	Rank	GY	Anth	Days to	Plant	Lodging		Husk	GLS	P.sorg	Grain	Num	Ear	Plant	GY	Anth	Days to	Lodging	Husk	Ear	GY	Plant	
				FW	Date	Silk	Height	Root	Stem	Cover	1-5	1-5	%	#	1-5	1-5	l/ha	d	d	%	%	%	l/ha	1-5	
Maturity group average		%	Avg	StdDev	6.2	63.5	64.4	259.9	20.8	17.2	12.4	1.7	1.9	15.9	37	2.8	2.4	6.2	85.3	86.7	3.0	7.9	0.7	2.9	1.9
Entries with anthesis date between 77 - 78 days																									
30	CKL05003/CKL05022/CML442/CML444	115	13	12	7.2	65	65	265	15	8	15	1.4	1.9	16.9	38	1.9	2.7	5.7	88	88	0	8	0	2.2	1.9
17	CZL00003/CML444/CKL05003	110	15	12	6.4	63	65	258	16	19	4	1.7	2.1	15.3	37	2.5	2.2	7.3	86	88	0	20	0	2.8	1.6
23	CML444/CML489/CKL05003	106	17	11	6.6	66	67	260	24	9	3	2.3	1.5	18.4	36	3.1	2.5	3.7	90	91	5	8	2	1.8	2.0
1	CML442/CML444/CKL05004	102	20	12	6.5	66	66	256	18	21	13	1.7	1.7	16.7	35	2.3	1.7	5.1	86	87	3	10	7	2.8	1.9
26	CML444/CML489/CKL05022	100	21	12	5.5	66	66	260	23	19	9	1.7	1.7	16.8	37	3.5	3.2	5.7	88	89	2	7	0	3.1	2.0
Maturity group average					6.4	65.1	66.0	260.1	19.1	15.4	8.6	1.8	1.8	16.8	37	2.7	2.5	5.5	87.8	88.8	2.0	10.3	1.8	2.6	1.9
Mean		100	21	10	6.12	62.8	64.0	257.6	19.6	15.3	13.7	1.7	1.9	15.6	36.8	2.9	2.5	5.94	84.6	86.1	3.0	9.0	1.0	2.85	1.9
LSD (0.05)		13	6	2	1.09	1.8	1.7	14.2	16.2	19.7	12.4	0.5	0.5	2.3	2.2	0.7	0.7	2.72	3.2	3.7	5.5	12.0	3.2	1.97	1.0
Min		58	9	6	4.28	58.5	59.7	232.6	3.3	0.5	2.5	1.4	1.4	13.3	31.0	1.8	1.7	3.39	77.5	78.8	0.0	0.0	0.0	1.71	1.0
Max		119	35	14	8.33	66.3	67.3	286.7	71.6	39.3	47.5	2.5	3.3	18.4	38.0	4.1	3.5	8.68	90.3	91.1	15.0	41.5	6.6	4.15	3.0
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1

Entry	Pedigree	Serere, Uganda OPT							Ngaramtoni, Tanzania OPT					Usa, Tanzania OPT				Weruweru, Tanzania OPT					
		Across		GY	ASI	Grain	Plant	GY	Anth	Days to	Grain	Grain	GY	Grain	Grain	Ear	GY	Ear	Ear	Grain	Grain	Ear	
		RelGY	Rank	FW		Text	Aspect	FW	Date	Silk	Text	Moist	Text	Moist	Aspect	FW	Height	Position	Text	Moist	Aspect		
	%	Avg	StdDev	t/ha	d	1-5	1-5	t/ha	d	d	1-5	%	t/ha	1-5	%	1-5	t/ha	cm	0-1	1-5	%	1-5	
Entries with anthesis date between 71 - 72 days																							
21	CML488/CZL00003/CKL05019	103	20	12	8.2	1	1.8	3.0	3.8	74	77	1.0	15.5	8.4	1.3	23.0	1.9	4.0	112	0.4	1.8	14.6	1.6
27	CML202/CML395/CKL08085	92	25	10	7.4	1	2.5	2.5	3.4	78	81	1.6	15.5	6.2	1.7	22.2	2.0	4.3	117	0.5	2.0	15.9	2.2
34	H513	95	27	8	5.8	2	2.2	3.3	3.1	75	78	2.3	15.5	6.6	1.4	23.8	1.9	4.1	143	0.6	2.2	14.9	1.7
37	DK8031	81	31	11	6.1	1	3.9	3.0	3.1	71	74	3.1	11.6	5.0	3.1	18.9	3.9	3.7	106	0.4	3.3	13.8	3.5
Maturity group average					6.9	1.2	2.6	2.9	3.3	74.1	77.4	2.0	14.5	6.5	1.9	22.0	2.4	4.0	119.5	0.5	2.3	14.8	2.2
Entries with anthesis date between 73 - 74 days																							
6	CML442/CML444/CKL08002	119	12	8	7.9	0	3.5	3.3	4.5	75	79	4.0	15.3	7.9	4.3	22.0	2.0	3.8	133	0.5	3.5	14.9	2.4
16	CML442/CML445/CKL05022	115	14	8	9.1	0	2.9	2.8	3.3	77	80	2.3	17.8	8.2	2.8	22.0	2.2	4.0	143	0.6	2.5	16.6	2.8
15	CML442/CML445/CKL05017	103	17	12	7.6	0	2.8	2.8	3.1	75	79	1.7	16.4	7.9	1.6	21.7	2.0	4.2	117	0.4	2.3	15.3	2.3
11	CML312/CML442/CKL05015	97	18	11	6.6	0	2.8	3.5	3.4	75	78	2.1	16.2	8.9	2.2	22.3	1.9	4.4	125	0.6	2.8	15.1	2.2
25	CML444/CML489/CKL05019	111	18	11	7.7	1	2.4	2.8	3.7	76	79	1.0	15.4	8.7	1.2	23.1	1.7	4.4	135	0.5	1.5	15.2	2.1
8	CML442/CML444/CKL08063	104	19	11	8.0	0	3.1	2.8	3.6	76	78	2.7	15.1	8.9	2.4	20.1	2.1	4.2	120	0.5	2.3	14.6	2.2
19	CZL00003/CML444/CKL05019	98	20	12	5.2	1	1.7	2.8	4.0	75	77	1.0	13.6	8.4	1.3	22.4	1.6	3.7	118	0.5	1.5	14.6	1.9
7	CML442/CML444/CKL08006	112	21	10	8.3	1	3.3	3.0	3.5	74	76	3.8	15.4	8.4	4.1	22.8	2.3	4.8	134	0.6	3.2	15.3	3.0
20	CZL00003/CML444/CKL05017	95	22	8	3.7	0	3.1	2.5	3.0	75	78	1.9	14.4	7.4	2.2	22.6	1.9	3.7	111	0.4	2.0	15.3	2.3
31	CKL05005/CKL05017/CML442/CML444	101	22	7	6.0	0	2.1	3.0	3.5	78	81	1.8	14.8	6.3	2.5	21.6	2.4	3.2	118	0.4	2.3	14.8	2.6
33	CKL05005/CKL05022/CML442/CML444	99	22	10	7.0	2	2.5	3.3	3.4	77	80	2.0	16.6	6.0	2.5	21.2	2.3	4.4	141	0.5	2.2	16.2	2.2
40	LOCAL	87	27	14	5.1	2	2.6	3.0	2.4	75	79	2.8	16.1	6.1	3.1	22.5	2.6	3.4	129	0.5	2.5	15.2	2.3
22	CML488/CZL00003/CKL05009	87	28	8	6.0	0	1.8	3.3	3.9	76	80	1.1	14.9	7.8	1.5	23.5	1.6	3.8	127	0.5	1.8	14.9	2.2
Maturity group average					6.8	0.6	2.7	3.0	3.5	75.4	78.5	2.2	15.5	7.8	2.5	22.1	2.1	4.0	127.1	0.5	2.3	15.2	2.4
Entries with anthesis date between 75 - 76 days																							
13	CML442/CML445/CKL05003	112	9	11	7.8	1	3.1	2.8	3.2	80	83	1.7	18.6	9.5	2.3	24.7	1.8	3.8	155	0.6	2.5	15.8	1.8
29	CML442/CML444/CKL05003/CKL05017	119	12	9	7.3	0	2.6	3.0	2.9	77	80	2.1	16.4	8.4	2.0	23.5	1.8	3.6	136	0.5	2.5	15.7	2.1
10	CML312/CML442/CKL05003	108	12	14	8.7	2	2.9	2.8	2.3	78	81	2.1	17.7	10.0	2.6	21.0	1.9	3.3	125	0.5	3.0	15.5	2.3
12	CML312/CML442/CKL05022	116	14	10	6.7	0	2.5	3.5	3.1	80	83	2.3	17.6	8.4	2.5	24.4	2.3	4.5	128	0.5	2.8	16.1	2.1
4	CML442/CML444/CKL05018	111	16	7	5.6	2	3.2	3.3	3.4	78	81	2.2	16.9	8.0	2.7	22.8	2.0	4.2	144	0.6	2.5	15.2	2.1
3	CML442/CML444/CKL05017	99	18	13	6.2	0	2.3	3.5	3.0	80	83	2.4	16.0	5.7	2.2	21.8	2.3	4.6	125	0.5	2.2	15.8	2.8
18	CZL00003/CML444/CKL05022	116	18	12	7.5	1	2.3	3.0	3.2	78	82	2.4	14.8	7.4	2.0	22.8	1.8	4.4	128	0.5	2.3	14.9	2.6
35	WH403	105	19	11	6.7	1	2.1	3.0	3.1	77	81	1.7	15.1	8.5	1.7	23.3	2.0	4.1	129	0.5	2.3	14.9	2.0
5	CML442/CML444/CKL05022	105	19	11	6.1	2	2.9	3.5	3.2	79	83	2.6	15.7	7.3	2.3	21.2	2.1	4.8	147	0.6	3.0	15.3	2.3
2	CML442/CML444/CKL05015	102	20	11	6.1	0	2.9	3.0	1.5	80	83	2.2	15.0	7.5	3.6	23.4	2.3	3.2	151	0.6	2.5	15.5	2.2
14	CML442/CML445/CKL05004	93	21	10	6.8	1	2.8	3.0	2.7	76	79	2.6	14.2	8.0	3.7	25.7	1.9	3.8	136	0.5	3.0	15.9	2.0
28	CKL05003/CKL05005/CML442/CML444	95	22	10	8.4	1	3.2	3.0	3.4	79	82	1.9	17.6	8.7	2.5	23.5	1.9	3.9	129	0.5	2.5	15.1	1.9
24	CML444/CML489/CKL05017	94	24	9	7.2	0	2.2	3.0	2.7	80	83	1.5	15.8	6.2	2.1	21.8	2.1	3.4	139	0.6	2.3	15.5	2.1
9	CML202/CML395/CKL05024	96	24	9	5.7	2	2.4	3.3	3.0	77	80	1.2	16.1	6.6	2.3	24.1	1.8	3.2	122	0.5	2.2	16.9	2.3
36	WH505	92	25	9	7.3	0	2.9	3.0	2.8	79	82	1.8	19.9	7.9	2.3	22.9	2.3	3.9	104	0.4	2.8	15.5	2.4
32	CKL05005/CKL05018/CML442/CML444	87	29	7	6.7	1	2.9	3.3	3.6	78	82	2.7	15.1	6.6	2.2	22.4	2.2	4.3	142	0.6	2.5	15.0	2.3
39	HYTECH 1100	61	34	6	7.0	2	3.4	3.3	3.3	79	83	3.2	13.2	7.2	3.7	20.8	2.8	3.3	124	0.5	3.2	14.5	3.0
38	HYTECH 2031	58	35	8	6.2	0	2.7	3.0	3.3	80	83	4.0	13.4	6.3	3.2	22.2	2.9	3.2	145	0.5	3.8	12.0	3.7

Grain yield of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Serere, Uganda OPT							Ngaramtoni, Tanzania OPT					Usa, Tanzania OPT				Weruweru, Tanzania OPT					
		Across		GY	ASI	Grain	Plant	GY	Anth	Days to	Grain	Grain	GY	Grain	Grain	Ear	GY	Ear	Ear	Grain	Grain	Ear	
		RelGY	Rank	FW		Text	Aspect	FW	Date	Silk	Text	Moist	FW	Text	Moist	Aspect	FW	Height	Position	Text	Moist	Aspect	
	%	Avg	StdDev	t/ha	d	1-5	1-5	t/ha	d	d	1-5	%	t/ha	1-5	%	1-5	t/ha	cm	0-1	1-5	%	1-5	
Maturity group average					6.9	0.9	2.7	3.1	3.0	78.3	81.8	2.3	16.1	7.7	2.5	22.9	2.1	3.9	133.8	0.5	2.7	15.3	2.3
Entries with anthesis date between 77 - 78 days																							
30	CKL05003/CKL05022/CML442/CML444	115	13	12	5.3	1	2.8	3.5	2.6	81	84	1.8	17.7	8.9	2.4	23.6	2.2	3.7	134	0.5	3.0	15.7	2.0
17	CZL00003/CML444/CKL05003	110	15	12	6.8	3	2.1	3.3	2.5	79	82	2.2	17.5	9.4	2.7	27.3	2.0	3.5	149	0.6	2.2	15.4	2.7
23	CML444/CML489/CKL05003	106	17	11	8.3	1	2.9	3.3	2.5	80	84	2.0	15.4	7.4	2.3	27.9	1.9	3.8	172	0.6	2.0	17.0	1.8
1	CML442/CML444/CKL05004	102	20	12	8.3	0	3.0	2.8	4.0	79	83	2.7	16.8	7.3	3.5	23.0	2.5	4.7	148	0.6	2.5	14.3	2.2
26	CML444/CML489/CKL05022	100	21	12	7.3	0	2.5	3.0	3.2	80	83	2.1	15.9	6.8	2.2	26.5	2.7	3.6	161	0.6	2.7	16.1	2.4
Maturity group average					7.2	1.2	2.7	3.2	2.9	79.6	83.0	2.2	16.7	8.0	2.6	25.7	2.2	3.9	152.9	0.6	2.5	15.7	2.2
Mean		100	21	10	6.89	0.9	2.7	3.1	3.17	77.1	80.4	2.2	15.8	7.64	2.5	22.9	2.2	3.93	132.6	0.52	2.5	15.3	2.3
LSD (0.05)		13	6	2	2.66	1.5	0.8	0.5	1.56	4.0	4.7	0.8	2.5	1.78	0.9	2.8	0.7	1.56	27.8	0.10	0.6	1.4	0.7
Min		58	9	6	3.69	-0.1	1.7	2.5	1.55	71.0	74.0	1.0	11.6	5.01	1.2	18.9	1.6	3.17	103.5	0.4	1.5	12.0	1.6
Max		119	35	14	9.14	2.8	3.9	3.5	4.50	80.5	84.0	4.0	19.9	9.97	4.3	27.9	3.9	4.84	172.3	0.6	3.8	17.0	3.7
NumSignificantSites		13	13	13	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Namulonge, Uganda OPT									Bulindi, Uganda OPT					Mlingano, Tanzania OPT							
		Across		GY	Days to	Lodging	E.turc	Grain	Num	Ear	GY	Days to	E.turc	Grain	Plant	GY	Anth	Days to	Ear	Lodging	Grain	Grain	
		RelGY	Rank	FW	Silk	Root		Text	Plants	Aspect	FW	Silk		Text	Aspect	FW	Date	Silk	Height	Stem	Text	Moist	
	%	Avg	StdDev	t/ha	d	%	1-5	1-5	#	1-5	t/ha	d	1-5	1-5	1-5	t/ha	d	d	cm	%	1-5	%	
Entries with anthesis date between 71 - 72 days																							
21	CML488/CZL00003/CKL05019	103	20	12	6.8	62	3	2.0	2.0	31.8	2.8	6.7	68	2.3	1.0	3.3	4.7	51	55	103	24	1.8	15.3
27	CML202/CML395/CKL08085	92	25	10	6.1	62	0	1.5	2.5	32.0	3.0	6.6	67	2.8	2.3	3.1	5.2	53	55	89	11	2.0	16.1
34	H513	95	27	8	6.1	63	7	1.8	2.5	28.3	3.0	6.6	68	2.5	2.3	3.4	4.4	54	57	90	19	1.8	19.3
37	DK8031	81	31	11	6.9	61	0	1.3	3.3	32.3	3.0	4.5	68	2.5	4.5	3.0	5.4	51	53	108	15	3.0	15.4
Maturity group average					6.5	61.9	2.5	1.6	2.6	31.1	2.9	6.1	67.8	2.5	2.5	3.2	4.9	52.2	55.0	97.3	17.1	2.1	16.5
Entries with anthesis date between 73 - 74 days																							
6	CML442/CML444/CKL08002	119	12	8	7.9	62	4	1.5	4.0	33.8	3.0	8.2	68	2.5	4.8	3.3	4.9	55	58	87	6	3.3	15.1
16	CML442/CML445/CKL05022	115	14	8	7.8	65	1	1.8	2.3	30.5	2.8	5.3	69	2.5	2.5	3.1	5.5	52	54	108	11	2.3	18.6
15	CML442/CML445/CKL05017	103	17	12	5.7	62	0	1.5	3.3	30.1	2.8	7.7	68	2.0	1.8	2.6	4.6	51	53	92	26	2.3	16.5
11	CML312/CML442/CKL05015	97	18	11	6.6	63	3	1.5	2.8	31.7	3.0	4.4	68	2.8	2.5	3.3	5.6	57	58	104	6	2.5	16.0
25	CML444/CML489/CKL05019	111	18	11	6.9	63	0	2.0	2.0	31.5	2.3	7.9	66	2.3	1.5	3.2	4.4	51	52	104	8	2.0	17.9
8	CML442/CML444/CKL08063	104	19	11	8.4	62	0	1.8	2.5	33.3	3.0	6.1	68	3.0	2.8	3.3	4.6	53	56	99	10	2.8	17.1
19	CZL00003/CML444/CKL05019	98	20	12	7.8	67	1	1.8	1.8	28.7	2.8	5.1	66	2.3	1.0	3.2	4.2	53	55	91	11	1.8	16.0
7	CML442/CML444/CKL08006	112	21	10	7.8	62	10	1.5	4.3	31.0	3.0	5.0	70	3.0	5.0	3.5	5.6	55	57	75	4	2.8	17.7
20	CZL00003/CML444/CKL05017	95	22	8	6.9	62	0	1.3	2.3	33.0	3.0	7.0	69	2.8	2.0	3.1	3.7	51	55	99	22	2.0	14.5
31	CKL05005/CKL05017/CML442/CML444	101	22	7	7.1	62	2	1.5	2.3	31.6	3.0	7.4	68	2.8	2.0	3.1	3.8	51	56	77	13	2.3	17.9
33	CKL05005/CKL05022/CML442/CML444	99	22	10	6.5	64	0	1.3	2.3	32.1	3.0	5.5	66	2.3	1.8	3.0	4.5	54	56	95	2	2.0	16.7
40	LOCAL	87	27	14	3.7	67	0	1.5	2.5	13.5	3.0	7.5	73	2.3	2.3	2.5	4.7	52	55	93	0	3.0	20.9
22	CML488/CZL00003/CKL05009	87	28	8	7.3	63	1	1.8	2.0	32.1	2.5	7.4	69	2.3	1.8	2.9	3.3	52	54	105	32	1.8	16.8
Maturity group average					7.0	63.4	1.8	1.6	2.6	30.2	2.8	6.5	68.3	2.5	2.4	3.1	4.6	52.8	55.3	94.6	11.7	2.3	17.1
Entries with anthesis date between 75 - 76 days																							
13	CML442/CML445/CKL05003	112	9	11	8.2	66	0	1.8	2.0	32.1	2.3	3.8	66	2.3	2.5	2.9	6.0	50	51	123	3	2.8	20.1
29	CML442/CML444/CKL05003/CKL05017	119	12	9	8.2	63	0	1.8	2.3	30.2	2.5	7.0	68	2.5	2.0	3.3	5.2	54	52	95	12	2.5	17.8
10	CML312/CML442/CKL05003	108	12	14	8.8	64	0	1.8	2.5	32.0	2.8	5.8	69	2.8	3.3	3.2	6.2	53	55	108	16	2.5	21.2
12	CML312/CML442/CKL05022	116	14	10	6.7	64	0	1.8	2.5	33.9	3.0	6.6	70	2.8	2.0	3.1	5.4	54	56	96	14	2.5	18.9
4	CML442/CML444/CKL05018	111	16	7	7.9	67	1	1.3	2.3	32.4	2.8	7.0	70	2.8	2.5	3.3	4.5	52	54	102	21	2.3	16.1
3	CML442/CML444/CKL05017	99	18	13	7.0	63	2	1.5	2.8	32.2	2.5	7.9	70	2.3	1.8	2.7	3.6	54	57	83	13	2.3	16.8
18	CZL00003/CML444/CKL05022	116	18	12	5.9	67	2	1.8	2.0	27.8	3.0	4.0	70	3.0	3.0	3.3	4.0	54	56	100	10	2.0	16.3
35	WH403	105	19	11	6.3	65	0	1.5	2.3	27.7	3.0	3.6	69	4.0	1.8	3.7	4.8	53	55	105	22	2.3	15.7
5	CML442/CML444/CKL05022	105	19	11	7.7	64	2	1.5	3.0	31.0	2.8	6.7	72	2.8	1.8	2.9	6.2	51	55	105	16	3.0	19.6
2	CML442/CML444/CKL05015	102	20	11	5.8	67	3	3.3	2.3	27.8	3.3	6.5	64	2.3	2.5	2.8	5.9	53	56	95	14	2.5	18.2
14	CML442/CML445/CKL05004	93	21	10	7.9	65	0	1.8	3.0	31.7	3.0	5.4	67	3.0	2.0	3.2	4.5	54	56	100	24	3.3	15.0
28	CKL05003/CKL05005/CML442/CML444	95	22	10	7.8	66	0	1.5	2.5	30.6	3.0	6.2	64	2.8	2.0	3.2	4.3	53	55	93	1	2.8	16.1
24	CML444/CML489/CKL05017	94	24	9	8.0	62	1	1.3	2.5	30.7	2.8	4.9	67	2.3	2.0	2.9	4.4	51	54	98	4	2.0	16.9
9	CML202/CML395/CKL05024	96	24	9	7.5	66	0	1.3	2.5	32.7	2.8	5.7	68	2.5	1.5	3.2	5.5	54	56	90	2	2.3	17.4
36	WH505	92	25	9	7.0	65	1	2.0	2.8	30.3	3.3	4.2	66	3.0	2.0	3.2	4.6	52	55	96	1	2.8	14.6
32	CKL05005/CKL05018/CML442/CML444	87	29	7	7.8	63	0	1.8	2.5	30.8	3.0	4.2	68	2.5	2.5	3.1	5.2	52	54	103	17	2.5	16.2
39	HYTECH 1100	61	34	6	6.0	68	2	3.0	2.5	29.4	3.5	3.5	68	5.0	5.0	4.2	4.5	52	54	100	7	3.8	15.5
38	HYTECH 2031	58	35	8	2.7	68	5	4.5	3.0	21.8	3.0	1.0	68	5.0	4.8	4.1	3.4	52	57	88	11	4.0	13.9

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Namulonge, Uganda OPT									Bulindi, Uganda OPT					Mlingano, Tanzania OPT							
		Across			GY	Days to	Lodging	E.turc	Grain	Num	Ear	GY	Days to	E.turc	Grain	Plant	GY	Anth	Days to	Ear	Lodging	Grain	Grain
		RelGY	Rank	StdDev	FW	Silk	Root	%	Text	Plants	Aspect	FW	Silk	%	Text	Aspect	FW	Date	Silk	Height	Stem	Text	Moist
Maturity group average		%	Avg		7.1	65.1	1.0	1.9	2.5	30.3	2.9	5.2	68.1	3.0	2.5	3.2	4.9	52.6	54.8	98.9	11.5	2.7	17.0
Entries with anthesis date between 77 - 78 days																							
30	CKL05003/CKL05022/CML442/CML444	115	13	12	8.7	65	1	1.8	2.3	32.8	2.5	7.4	68	2.8	2.3	3.2	5.4	53	57	99	6	2.5	16.5
17	CZL00003/CML444/CKL05003	110	15	12	8.6	66	3	1.5	2.3	31.0	2.3	5.6	68	3.0	2.0	2.8	7.5	49	52	125	10	2.3	16.7
23	CML444/CML489/CKL05003	106	17	11	8.1	69	0	1.5	2.0	30.3	2.3	7.7	70	2.0	2.0	2.7	6.4	51	54	115	0	2.0	17.0
1	CML442/CML444/CKL05004	102	20	12	8.7	65	12	1.5	2.5	30.4	2.8	7.6	71	2.3	2.3	3.2	4.6	53	56	91	22	3.0	17.2
26	CML444/CML489/CKL05022	100	21	12	8.9	66	0	1.8	1.8	29.2	2.5	5.3	68	2.3	1.8	3.2	4.7	54	57	150	18	2.8	18.2
Maturity group average					8.6	66.1	3.1	1.6	2.2	30.8	2.5	6.7	69.0	2.5	2.1	3.0	5.7	52.2	55.0	115.9	11.4	2.5	17.1
Mean		100	21	10	7.16	64.4	1.6	1.7	2.5	30.4	2.8	5.92	68.3	2.7	2.4	3.2	4.89	52.6	55.0	99.5	12.1	2.5	17.0
LSD (0.05)		13	6	2	2.09	3.4	4.6	1.1	0.9	5.2	0.6	4.44	3.0	1.0	1.0	0.6	2.10	2.5	2.6	24.9	14.8	0.9	3.0
Min		58	9	6	2.68	61.2	0.0	1.3	1.8	13.5	2.3	1.01	63.7	2.0	1.0	2.5	3.34	49.4	51.4	74.8	0.0	1.8	13.9
Max		119	35	14	8.87	68.5	11.7	4.5	4.3	33.9	3.5	8.21	73.0	5.0	5.0	4.2	7.54	56.5	57.7	149.8	32.4	4.0	21.2
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Across			Embu, Kenya OPT		Kiboko, Kenya MDS	Hamdeni, Tanzania OPT					Melkessa, Ethiopia OPT					Karatu, Tanzania OPT				
		RelGY	Rank	StdDev	Grain Yield		Num	GY	GY	Anth	Plant	Lodging	Grain	Num	GY	Anth	Days to	Plant	Ear	Ear	Ear	GY
					FW	FW	Plants	FW	FW	Date	Height	Stem	Text	Plants	FW	Date	Silk	Height	Height	Position	Aspect	FW
%	Avg		t/ha	t/ha	#	t/ha	t/ha	d	cm	%	1-5	#	t/ha	d	d	cm	cm	0-1	1-5	t/ha		
Entries with anthesis date between 71 - 72 days																						
21	CML488/CZL00003/CKL05019	103	20	12	0.4	0.4	18	3.3	4.9	55	241	13	1.3	42	8.0	75	76	217	128	0.6	2.7	3.9
27	CML202/CML395/CKL08085	92	25	10	0.2	0.2	7	2.0	4.3	55	194	7	1.8	42	7.2	75	77	199	95	0.5	2.7	3.1
34	H513	95	27	8	0.4	0.4	22	3.6	4.0	57	218	11	1.5	42	7.6	74	75	211	93	0.4	2.3	3.2
37	DK8031	81	31	11	0.2	0.2	4	2.6	5.2	56	222	6	3.6	42	7.2	72	73	207	98	0.5	3.5	3.0
Maturity group average				0.3	0.3	13	2.9	4.6	55.7	219	9.2	2.1	42	7.5	74.0	75.1	209	103	0.5	2.8	3.3	
Entries with anthesis date between 73 - 74 days																						
6	CML442/CML444/CKL08002	119	12	8	0.4	0.4	8	3.2	4.8	54	221	8	2.4	42	7.6	76	77	197	103	0.5	3.3	3.5
16	CML442/CML445/CKL05022	115	14	8	0.7	0.6	21	3.0	3.3	58	224	31	2.7	42	7.7	78	79	213	118	0.6	2.6	4.2
15	CML442/CML445/CKL05017	103	17	12	0.0	0.1	9	4.3	4.7	53	202	33	2.2	42	8.4	77	78	198	93	0.5	2.9	3.5
11	CML312/CML442/CKL05015	97	18	11	0.1	0.1	2	1.9	4.0	56	237	19	1.9	42	8.1	77	78	216	93	0.4	2.5	4.4
25	CML444/CML489/CKL05019	111	18	11	1.1	0.9	30	2.6	5.6	56	230	6	1.5	42	8.1	78	78	221	125	0.6	2.2	3.4
8	CML442/CML444/CKL08063	104	19	11	0.3	0.3	13	2.6	4.5	59	220	10	2.6	42	8.2	74	75	203	100	0.5	2.7	4.5
19	CZL00003/CML444/CKL05019	98	20	12	0.4	0.4	18	4.1	3.9	60	241	15	1.2	42	7.8	77	78	229	125	0.5	2.2	4.04
7	CML442/CML444/CKL08006	112	21	10	0.4	0.3	8	2.5	4.6	59	190	3	3.2	42	5.9	77	78	188	95	0.5	2.7	3.8
20	CZL00003/CML444/CKL05017	95	22	8	0.2	0.2	6	3.3	3.5	57	217	32	2.0	42	7.4	77	78	199	95	0.5	2.6	3.04
31	CKL05005/CKL05017//CML442/CML444	101	22	7	0.5	0.5	18	2.0	3.6	56	198	19	1.8	42	7.7	76	77	199	105	0.5	2.8	3.8
33	CKL05005/CKL05022/CML442/CML444	99	22	10	0.5	0.6	22	3.1	3.9	58	208	24	1.9	41	7.4	76	77	210	113	0.5	2.7	3.6
40	LOCAL	87	27	14	0.2	0.2	7	2.0	4.3	54	222	11	3.4	31	6.3	79	81	205	105	0.5	3.5	3.1
22	CML488/CZL00003/CKL05009	87	28	8	0.2	0.2	9	3.6	4.6	55	232	30	1.3	42	7.1	74	75	204	108	0.5	3.3	3.5
Maturity group average				0.4	0.4	13	2.9	4.2	56.6	219	18.5	2.2	41	7.5	76.6	77.6	206	106	0.5	2.8	3.7	
Entries with anthesis date between 75 - 76 days																						
13	CML442/CML445/CKL05003	112	9	11	0.3	0.3	12	1.7	4.4	60	207	19	2.3	42	9.5	78	79	221	118	0.6	2.2	3.1
29	CML442/CML444/CKL05003/CKL05017	119	12	9	1.0	0.9	28	3.2	3.9	59	222	24	2.6	42	8.3	79	80	201	98	0.5	2.5	3.7
10	CML312/CML442/CKL05003	108	12	14	0.1	0.1	6	2.1	4.7	58	227	9	3.1	41	9.5	78	79	217	108	0.5	2.1	3.7
12	CML312/CML442/CKL05022	116	14	10	0.8	0.8	29	2.8	3.3	59	200	41	2.5	40	7.9	76	77	215	103	0.4	3.0	4.3
4	CML442/CML444/CKL05018	111	16	7	0.5	0.5	19	3.2	5.7	57	220	32	2.9	42	8.0	78	79	198	88	0.4	2.7	3.3
3	CML442/CML444/CKL05017	99	18	13	0.1	0.2	6	2.3	4.2	59	224	15	2.4	41	8.5	77	78	208	85	0.5	2.8	3.8
18	CZL00003/CML444/CKL05022	116	18	12	0.6	0.5	20	2.3	4.5	58	231	33	2.0	41	8.7	76	77	209	100	0.5	2.5	3.0
35	WH403	105	19	11	0.4	0.5	25	3.6	4.5	57	223	25	1.6	42	9.1	77	78	216	95	0.4	2.5	2.9
5	CML442/CML444/CKL05022	105	19	11	0.7	0.7	20	2.8	5.3	57	228	7	3.0	42	7.0	78	79	217	113	0.5	3.0	3.6
2	CML442/CML444/CKL05015	102	20	11	0.4	0.4	18	3.8	4.9	59	215	14	2.6	42	7.4	79	80	218	113	0.6	2.7	3.9
14	CML442/CML445/CKL05004	93	21	10	0.2	0.3	14	3.0	3.8	58	210	36	2.3	42	8.6	76	77	199	103	0.5	2.5	3.3
28	CKL05003/CKL05005/CML442/CML444	95	22	10	0.4	0.5	21	2.3	3.6	59	181	7	2.1	42	9.1	78	79	204	95	0.4	2.5	4.4
24	CML444/CML489/CKL05017	94	24	9	0.4	0.4	13	2.0	3.6	58	202	23	1.9	42	7.5	78	79	194	95	0.5	2.5	3.0
9	CML202/CML395/CKL05024	96	24	9	0.6	0.6	22	2.6	5.4	56	219	15	2.6	42	7.6	76	78	197	85	0.4	2.8	3.7
36	WH505	92	25	9	0.4	0.3	18	2.9	3.5	58	220	15	2.6	42	9.1	78	80	208	88	0.4	2.7	3.8
32	CKL05005/CKL05018/CML442/CML444	87	29	7	0.4	0.4	17	1.5	3.8	58	196	24	2.3	42	7.2	77	78	205	105	0.5	3.0	3.9
39	HYTECH 1100	61	34	6	0.0	0.0	5	3.5	3.7	58	208	24	2.6	37	7.8	76	77	222	100	0.5	3.0	2.6
38	HYTECH 2031	58	35	8	0.6	0.5	11	3.3	3.8	58	221	7	3.2	41	7.1	77	78	216	93	0.5	3.2	2.1

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Embu, Kenya OPT						Kiboko, Kenya MDS	Hamdeni, Tanzania OPT						Melkessa, Ethiopia OPT						Karatu, Tanzania OPT	
		Across			Grain Yield		Num	GY	GY	Anth	Plant	Lodging	Grain	Num	GY	Anth	Days to	Plant	Ear	Ear	Ear	GY
		RelGY	Rank	SidDev	GW	FW	Plants	FW	FW	Date	Height	Stem	Text	Plants	FW	Date	Silk	Height	Height	Position	Aspect	FW
Maturity group average		%	Avg	SidDev	0.4	0.4	17	2.7	4.3	58.0	214.1	20.5	2.5	41	8.2	77.4	78.5	209	99	0.5	2.7	3.4
Entries with anthesis date between 77 - 78 days																						
30	CKL05003/CKL05022/CML442/CML444	115	13	12	0.6	0.6	18	2.4	4.7	61	212	16	2.7	42	8.5	80	81	227	120	0.5	2.8	3.9
17	CZL00003/CML444/CKL05003	110	15	12	0.8	0.8	27	4.2	4.0	62	236	18	1.5	42	8.8	80	81	235	125	0.5	2.7	3.4
23	CML444/CML489/CKL05003	106	17	11	0.8	0.8	21	3.4	4.6	59	214	17	1.4	42	9.0	82	84	218	118	0.5	2.2	2.1
1	CML442/CML444/CKL05004	102	20	12	0.7	0.7	21	2.8	5.2	59	237	18	2.3	42	8.1	77	78	200	105	0.5	2.4	3.7
26	CML444/CML489/CKL05022	100	21	12	0.4	0.4	21	3.3	4.4	58	224	17	2.3	42	7.7	78	78	212	110	0.5	3.0	3.2
Maturity group average					0.7	0.6	22	3.2	4.6	59.7	224.7	17.1	2.1	42	8.4	79.3	80.4	218	116	0.5	2.6	3.3
Mean		100	21	10	0.43	0.43	15.9	2.86	4.33	57.5	217.4	18.3	2.3	41.3	7.95	77.0	78.1	209.4	103.6	0.49	2.7	3.50
LSD (0.05)		13	6	2	0.47	0.44	14.5	1.82	1.62	3.0	24.7	18.2	0.9	3.4	1.43	2.4	2.5	16.7	20.8	0.09	0.7	1.17
Min		58	9	6	0.01	0.04	2.4	1.5	3.3	53.1	181.1	2.7	1.2	30.5	5.94	72.5	73.1	188.1	85.0	0.4	2.1	2.11
Max		119	35	14	1.06	0.95	29.9	4.3	5.7	61.9	241.4	41.3	3.6	42.0	9.53	82.1	83.6	234.5	127.5	0.6	3.5	4.52
NumSignificantSites		13	13	13	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Dhera, Ethiopia OPT											Shikusa, Kenya OPT										
		Across			GY	Anth	Days to	Ear	P.sorg	Grain	Num	Ear	GY	Anth	Days to	ASI	Lodging	Ears/	GLS	P.sorg	E.turc	Grain	Plant
		RelGY	Rank	StdDev	FW	Date	Silk	Position	1.5	Moist	Plants	Aspect	FW	Date	Silk	d	Stem	Plant	1.5	1.5	1.5	1.5	1.5
	%	Avg		t/ha	d	d	0-1	%	#	1.5	t/ha	d	d	d	%	#	1.5	1.5	1.5	1.5	1.5	1.5	
Entries with anthesis date between 71 - 72 days																							
21	CML488/CZL00003//CKL05019	103	20	12	3.4	90	92	0.5	1.6	13	36	3.0	4.2	72	75	3	31	0.8	2.3	3.9	2.0	1.7	2.8
27	CML202/CML395//CKL08085	92	25	10	2.2	89	91	0.4	1.6	14	18	3.0	6.0	72	71	-1	43	1.0	2.0	3.6	2.5	2.5	2.8
34	H513	95	27	8	3.7	88	95	0.6	2.2	14	24	2.8	3.1	71	69	-2	22	0.8	2.0	3.8	2.5	2.1	2.7
37	DK8031	81	31	11	3.6	86	87	0.5	2.0	11	27	3.0	3.0	71	70	-2	41	0.8	2.3	3.6	2.3	3.3	2.5
Maturity group average					3.2	88	91	0.5	1.9	13.1	26.0	2.9	4.1	71.6	71.4	-0.4	34.0	0.8	2.1	3.7	2.3	2.4	2.7
Entries with anthesis date between 73 - 74 days																							
6	CML442/CML444//CKL08002	119	12	8	3.7	92	93	0.5	2.0	14	23	3.0	7.1	72	70	-2	19	1.0	2.0	2.5	3.0	2.7	2.3
16	CML442/CML445//CKL05022	115	14	8	3.3	95	96	0.5	2.0	14	24	3.0	5.2	73	70	-2	44	0.9	2.0	4.0	2.3	2.1	2.5
15	CML442/CML445//CKL05017	103	17	12	4.3	88	90	0.5	2.0	16	32	2.5	6.7	73	72	-1	48	0.9	2.0	4.5	2.5	2.0	2.5
11	CML312/CML442//CKL05015	97	18	11	3.5	91	94	0.5	1.9	15	33	2.8	7.0	73	72	-1	53	0.8	2.0	4.0	2.3	2.5	2.5
25	CML444/CML489//CKL05019	111	18	11	4.1	92	93	0.6	1.6	13	28	2.3	5.6	72	71	-1	68	0.9	2.5	3.7	2.3	1.6	2.5
8	CML442/CML444//CKL08063	104	19	11	3.4	89	90	0.5	2.2	12	30	3.0	5.5	72	70	-1	11	0.9	2.0	4.0	2.0	2.5	2.8
19	CZL00003/CML444//CKL05019	98	20	12	3.5	93	95	0.5	1.6	14	31	2.5	2.7	72	72	0	40	0.8	2.3	3.2	2.5	1.5	2.7
7	CML442/CML444//CKL08006	112	21	10	2.3	88	90	0.5	2.0	14	14	3.0	5.5	72	70	-2	45	0.9	2.0	3.8	2.0	3.1	2.5
20	CZL00003/CML444//CKL05017	95	22	8	3.4	94	95	0.5	2.0	13	29	2.8	6.0	73	73	0	24	0.9	2.0	3.8	2.3	2.2	2.5
31	CKL05005/CKL05017//CML442/CML444	101	22	7	3.5	89	91	0.5	1.9	14	26	2.5	5.5	72	71	-1	6	0.9	2.0	4.0	2.3	2.3	3.0
33	CKL05005/CKL05022/CML442/CML444	99	22	10	3.8	93	94	0.5	2.2	14	24	2.5	5.9	73	72	-1	51	0.9	2.0	4.1	2.5	2.5	2.5
40	LOCAL	87	27	14	2.8	94	96	0.5	2.3	15	31	3.0	6.1	74	71	-2	53	0.9	2.5	3.8	2.3	1.6	2.2
22	CML488/CZL00003//CKL05009	87	28	8	3.6	92	94	0.5	2.3	15	29	2.8	5.1	72	72	0	76	0.9	2.0	3.4	2.5	2.0	2.7
Maturity group average					3.5	92	93	0.5	2.0	14.1	27.2	2.7	5.7	72.5	71.3	-1.2	41.3	0.9	2.1	3.8	2.3	2.2	2.6
Entries with anthesis date between 75 - 76 days																							
13	CML442/CML445//CKL05003	112	9	11	4.1	96	96	0.5	1.6	18	26	2.3	5.8	73	73	0	47	0.9	2.3	3.8	2.5	2.7	2.7
29	CML442/CML444//CKL05003/CKL05017	119	12	9	3.5	95	96	0.6	2.3	14	33	2.8	6.4	75	72	-3	61	0.9	2.0	3.9	2.5	2.5	2.5
10	CML312/CML442//CKL05003	108	12	14	3.5	96	97	0.5	2.0	17	21	2.8	6.4	75	73	-2	48	0.9	2.0	4.0	2.3	2.6	2.5
12	CML312/CML442//CKL05022	116	14	10	3.9	94	97	0.6	1.9	13	32	2.8	7.8	73	72	-1	35	0.9	2.0	4.1	2.8	2.2	2.4
4	CML442/CML444//CKL05018	111	16	7	3.3	93	96	0.5	2.1	17	31	2.8	5.5	76	74	-2	40	0.8	2.0	3.7	2.3	2.5	2.5
3	CML442/CML444//CKL05017	99	18	13	3.3	96	97	0.5	2.0	13	30	3.0	7.1	73	72	0	44	0.9	2.0	3.5	2.5	2.1	2.5
18	CZL00003/CML444//CKL05022	116	18	12	3.3	96	97	0.6	1.7	15	24	2.8	5.0	74	72	-2	70	0.8	2.3	4.0	2.3	2.2	2.5
35	WH403	105	19	11	2.3	96	98	0.5	1.8	18	31	2.8	6.8	75	73	-2	25	0.9	2.0	4.0	2.5	2.0	2.7
5	CML442/CML444//CKL05022	105	19	11	3.5	92	97	0.5	2.0	14	27	3.0	4.6	75	73	-2	64	0.9	2.0	3.9	2.5	2.3	2.5
2	CML442/CML444//CKL05015	102	20	11	2.6	96	98	0.5	1.9	12	31	2.8	6.6	74	73	-1	62	0.8	2.0	3.8	2.3	2.3	2.5
14	CML442/CML445//CKL05004	93	21	10	2.4	97	99	0.5	1.8	18	19	3.0	2.5	76	75	-1	95	0.8	2.0	3.5	2.0	2.6	3.0
28	CKL05003/CKL05005//CML442/CML444	95	22	10	3.3	94	96	0.5	2.1	15	28	2.8	5.7	74	74	0	72	1.0	2.0	3.9	2.3	2.5	2.8
24	CML444/CML489//CKL05017	94	24	9	3.2	94	96	0.5	2.5	13	33	3.3	6.0	76	73	-2	44	0.8	2.3	3.9	2.5	2.2	2.5
9	CML202/CML395//CKL05024	96	24	9	3.4	94	95	0.4	2.1	15	27	2.5	6.3	74	72	-1	16	0.9	2.3	4.0	2.3	1.7	2.2
36	WH505	92	25	9	1.7	99	100	0.5	1.8	14	12	3.0	5.2	74	74	0	33	0.9	2.5	3.8	2.0	2.6	3.0
32	CKL05005/CKL05018//CML442/CML444	87	29	7	3.2	92	93	0.6	2.0	15	25	2.8	4.0	75	73	-2	52	0.8	2.3	3.9	2.8	2.7	3.0
39	HYTECH 1100	61	34	6	3.1	93	95	0.4	2.3	12	28	3.3	0.9	76	80	4	46	0.3	3.8	4.6	4.3	3.7	5.0
38	HYTECH 2031	58	35	8	2.5	93	95	0.5	2.6	14	18	3.0	0.4	75	76	2	85	0.1	5.0	5.0	4.9	1.0	5.0

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Dhera, Ethiopia OPT											Shikusa, Kenya OPT										
		Across			GY	Anth	Days to	Ear	P.sorg	Grain	Num	Ear	GY	Anth	Days to	ASI	Lodging	Ears/	GLS	P.sorg	E.turc	Grain	Plant
		RelGY	Rank	StdDev	FW	Date	Silk	Position	Moist	Plants	Aspect	FW	Date	Silk	d	Stem	Plant	1-5	1-5	1-5	1-5	Text	Aspect
Maturity group average		%	Avg		3.2	94.7	96.5	0.5	2.0	14.8	26.6	2.8	5.2	74.6	73.7	-0.9	52.2	0.8	2.4	4.0	2.6	2.4	2.9
Entries with anthesis date between 77 - 78 days																							
30	CKL05003/CKL05022/CML442/CML444	115	13	12	2.4	93	95	0.5	2.2	16	19	2.8	5.4	75	74	-1	75	0.9	2.3	3.7	2.8	2.2	2.5
17	CZL00003/CML444/CKL05003	110	15	12	2.5	96	98	0.6	2.0	20	35	3.0	4.7	76	75	-1	58	0.9	2.0	4.0	2.0	2.3	2.5
23	CML444/CML489/CKL05003	106	17	11	3.0	97	98	0.6	2.3	18	26	2.8	4.8	79	78	0	67	0.8	2.3	4.0	2.5	2.1	2.6
1	CML442/CML444/CKL05004	102	20	12	2.9	97	97	0.5	2.0	14	21	2.8	3.9	77	76	-1	94	0.9	2.0	3.9	2.5	2.9	2.5
26	CML444/CML489/CKL05022	100	21	12	2.8	96	97	0.6	1.9	13	24	3.0	2.9	76	74	-2	42	0.9	2.0	3.8	2.3	2.2	2.5
Maturity group average					2.7	95.9	97.0	0.5	2.1	16.1	24.7	2.9	4.3	76.5	75.4	-1.1	67.1	0.9	2.1	3.9	2.4	2.3	2.5
Mean		100	21	10	3.22	93.2	95.0	0.50	2.0	14.6	26.5	2.8	5.13	73.9	72.9	-1.0	48.7	0.84	2.2	3.9	2.5	2.3	2.7
LSD (0.05)		13	6	2	1.57	5.1	5.3	0.09	0.5	3.3	9.4	0.5	2.74	2.5	3.0	2.4	36.1	0.19	0.7	0.5	0.7	0.9	0.4
Min		58	9	6	1.72	85.7	86.6	0.4	1.6	11.1	11.9	2.3	0.42	71.1	68.8	-2.6	6.5	0.1	2.0	2.5	2.0	1.0	2.2
Max		119	35	14	4.32	98.6	100.1	0.6	2.6	19.7	35.5	3.3	7.77	78.6	80.4	4.0	95.3	1.0	5.0	5.0	4.9	3.7	5.0
NumSignificantSites		13	13	13	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing and three-way double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kakamega, Kenya OPT											Elgon Downs, Kenya OPT									
		Across			GY	Anth	Days to	Ear	Lodging	Ears/	Ear	GLS	E.turc	Grain	Ear	Plant	Grain Yield		Anth	Days to	Husk	Ear
		RelGY	Rank	StdDev	FW	Date	Silk	Height	Stem	Plant	Rot	1.5	1.5	Moist	Aspect	Aspect	GW	FW	Date	Silk	Cover	Aspect
	%	Avg		t/ha	d	d	cm	%	#	%			%	1.5	1.5	t/ha	t/ha	d	d	%	1.5	
Entries with anthesis date between 71 - 72 days																						
21	CML488/CZL0003/CKL05019	103	20	12	9.2	74	75	106	1	1.0	10	1.8	2.0	21	2.0	2.0	6.9	7.4	91	91	3	2.0
27	CML202/CML395/CKL08085	92	25	10	7.5	74	76	88	0	1.0	33	3.7	2.0	20	3.2	3.0	7.6	7.5	87	88	2	1.9
34	H513	95	27	8	6.8	73	74	137	6	1.1	13	3.8	1.5	22	2.7	2.8	5.9	6.4	91	93	12	2.2
37	DK8031	81	31	11	8.2	71	71	110	4	1.0	17	1.8	1.5	22	3.5	2.5	4.0	3.9	93	94	0	3.9
Maturity group average					7.9	73	74	110	2.9	1.0	17.9	2.8	1.8	21.4	2.9	2.6	6.1	6.3	90.5	91.2	4.0	2.5
Entries with anthesis date between 73 - 74 days																						
6	CML442/CML444/CKL08002	119	12	8	10.0	74	76	113	1	1.0	14	1.5	1.9	21	2.5	2.3	6.9	7.1	92	93	0	3.8
16	CML442/CML445/CKL05022	115	14	8	9.4	72	77	112	0	1.0	12	2.2	1.5	22	2.2	2.5	7.6	7.9	94	94	11	1.9
15	CML442/CML445/CKL05017	103	17	12	9.1	76	77	85	0	1.0	14	2.0	1.4	22	2.0	2.5	7.8	7.6	93	93	5	1.6
11	CML312/CML442/CKL05015	97	18	11	8.1	75	76	123	6	1.0	20	3.0	1.5	19	2.5	2.0	6.9	6.9	94	95	5	2.6
25	CML444/CML489/CKL05019	111	18	11	8.4	75	76	139	0	1.0	17	2.0	2.2	22	2.0	2.3	7.9	8.0	93	92	0	1.8
8	CML442/CML444/CKL08063	104	19	11	6.8	74	74	86	0	1.0	24	2.0	2.2	20	3.0	3.0	6.5	6.7	90	89	10	2.4
19	CZL00003/CML444/CKL05019	98	20	12	9.6	74	75	122	0	1.0	3	2.0	2.3	23	1.7	2.3	5.8	6.6	94	95	0	1.6
7	CML442/CML444/CKL08006	112	21	10	7.1	76	76	108	2	1.1	14	2.0	2.0	24	2.8	2.5	6.9	7.0	88	88	10	2.8
20	CZL00003/CML444/CKL05017	95	22	8	9.4	74	76	108	3	1.0	3	2.0	1.5	24	2.0	2.3	6.6	6.8	93	93	4	2.4
31	CKL05005/CKL05017/CML442/CML444	101	22	7	8.3	75	76	106	1	1.0	14	2.3	1.6	21	2.5	2.8	5.2	5.6	95	96	0	2.0
33	CKL05005/CKL05022/CML442/CML444	99	22	10	9.1	78	77	139	4	0.9	12	2.5	1.6	21	2.3	2.5	5.6	5.8	93	93	0	2.2
40	LOCAL	87	27	14	6.1	75	77	112	9	1.0	34	4.0	1.5	18	3.2	3.0	9.3	10.0	93	93	7	1.1
22	CML488/CZL00003/CKL05009	87	28	8	9.2	75	76	118	6	1.0	14	1.7	1.7	22	2.5	2.5	5.7	5.5	92	92	15	2.0
Maturity group average					8.5	75	76	113	2.4	1.0	14.7	2.2	1.8	21.6	2.4	2.5	6.8	7.0	92.6	92.7	5.2	2.2
Entries with anthesis date between 75 - 76 days																						
13	CML442/CML445/CKL05003	112	9	11	9.5	76	79	119	1	1.0	22	2.7	2.1	24	2.7	2.0	7.6	8.2	98	100	2	2.6
29	CML442/CML444/CKL05003/CKL05017	119	12	9	8.2	77	78	106	5	1.0	22	2.0	1.6	24	2.7	2.3	6.2	6.1	96	97	6	2.3
10	CML312/CML442/CKL05003	108	12	14	8.3	79	80	109	2	1.0	16	3.0	1.8	25	3.0	2.3	9.1	6.0	94	94	12	2.0
12	CML312/CML442/CKL05022	116	14	10	9.0	75	76	124	0	0.9	10	2.5	1.7	22	2.2	2.3	9.2	9.3	93	92	2	2.2
4	CML442/CML444/CKL05018	111	16	7	9.7	77	78	115	1	1.0	4	2.0	1.6	22	2.0	2.5	6.1	6.4	95	95	6	2.8
3	CML442/CML444/CKL05017	99	18	13	9.2	76	78	103	2	1.0	22	2.0	1.5	22	2.3	2.0	7.0	7.3	94	93	3	1.8
18	CZL00003/CML444/CKL05022	116	18	12	10.6	75	78	113	6	1.0	12	2.0	1.5	22	2.0	2.0	6.6	6.8	95	96	4	2.2
35	WH403	105	19	11	7.5	75	77	120	1	1.0	17	2.8	1.6	23	2.5	2.8	5.9	6.7	96	97	4	2.3
5	CML442/CML444/CKL05022	105	19	11	9.3	78	78	134	4	1.0	11	2.0	1.5	25	2.0	2.5	6.6	7.0	95	95	0	2.0
2	CML442/CML444/CKL05015	102	20	11	8.1	77	78	112	4	1.0	9	2.5	1.5	23	2.7	2.3	4.9	5.4	98	99	0	3.0
14	CML442/CML445/CKL05004	93	21	10	7.8	76	76	104	2	0.9	18	2.8	2.1	21	2.5	2.3	6.7	7.2	93	94	2	2.1
28	CKL05003/CKL05005/CML442/CML444	95	22	10	6.6	77	79	98	0	1.0	23	3.0	1.5	21	3.0	2.8	4.0	4.7	98	99	2	3.2
24	CML444/CML489/CKL05017	94	24	9	8.5	77	77	103	0	1.0	7	2.0	1.5	21	1.8	2.5	6.7	6.7	97	97	8	1.7
9	CML202/CML395/CKL05024	96	24	9	8.5	76	78	105	4	1.0	21	2.0	1.6	24	2.5	2.5	6.4	7.1	93	95	2	2.0
36	WH505	92	25	9	7.5	78	78	93	1	1.1	44	2.2	1.8	23	3.0	2.5	6.4	7.1	96	96	6	2.8
32	CKL05005/CKL05018/CML442/CML444	87	29	7	6.9	76	77	95	3	1.0	11	2.5	1.6	25	2.7	2.5	5.5	5.7	96	97	3	2.8
39	HYTECH 1100	61	34	6	3.2	77	78	123	16	0.9	43	2.5	3.8	19	3.8	3.8	4.1	4.9	95	96	0	4.6
38	HYTECH 2031	58	35	8	2.1	77	79	117	8	0.7	49	2.0	4.2	18	4.0	4.0	2.5	2.7	98	98	0	5.0

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing and three-way double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Entry	Pedigree	Kakamega, Kenya OPT														Elgon Downs, Kenya OPT						
		Across			GY	Anth	Days to	Ear	Lodging	Ears/	Ear	GLS	E.turc	Grain	Ear	Plant	Grain Yield		Anth	Days to	Husk	Ear
		RelGY	Rank	StdDev	FW	Date	Silk	Height	Stem	Plant	Rot			Moist	Aspect	Aspect	GW	FW	Date	Silk	Cover	Aspect
Maturity group average		%	Avg		t/ha	d	d	cm	%	#	%	1.5	1.5	%	1.5	1.5	t/ha	t/ha	d	d	%	1.5
Maturity group average					7.8	77	78	111	3.4	1.0	19.8	2.4	1.9	22.3	2.6	2.5	6.2	6.4	95.6	96.0	3.4	2.6
Entries with anthesis date between 77 - 78 days																						
30	CKL05003/CKL05022/CML442/CML444	115	13	12	6.5	79	79	102	1	1.0	15	2.5	1.7	24	2.2	2.5	4.6	5.4	97	98	6	2.8
17	CZL00003/CML444/CKL05003	110	15	12	8.3	80	80	119	2	1.0	22	2.5	1.7	25	2.5	2.0	4.8	5.3	94	96	1	3.7
23	CML444/CML489/CKL05003	106	17	11	8.8	80	80	129	0	1.0	18	2.8	1.6	27	2.3	2.3	4.8	5.4	93	93	0	3.1
1	CML442/CML444/CKL05004	102	20	12	6.8	79	79	133	19	1.0	14	3.0	1.8	23	2.5	2.5	3.9	5.3	97	98	1	3.5
26	CML444/CML489/CKL05022	100	21	12	8.9	77	77	118	0	1.0	11	2.0	1.6	24	2.0	2.3	5.0	5.5	102	104	1	2.3
Maturity group average					7.9	79	79	120	4.3	1.0	15.7	2.6	1.6	24.6	2.3	2.3	4.6	5.4	96.5	97.9	1.9	3.1
Mean		100	21	10	8.05	76.0	77.0	112.7	3.1	0.99	17.4	2.4	1.8	22.3	2.5	2.5	6.20	6.47	94.2	94.7	3.6	2.5
LSD (0.05)		13	6	2	1.97	3.1	3.0	26.6	7.0	0.10	17.4	0.5	0.4	3.7	0.6	0.5	1.44	2.46	2.8	3.2	7.7	1.0
Min		58	9	6	2.11	71.2	71.1	85.0	0.0	0.7	3.0	1.5	1.4	18.0	1.7	2.0	2.52	2.67	87.4	87.8	0.0	1.1
Max		119	35	14	10.62	79.6	80.1	139.3	18.8	1.1	48.5	4.0	4.2	27.3	4.0	4.0	9.32	9.97	101.6	104.1	14.5	5.0
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Kitale, Kenya OPT

Entry	Pedigree	Across			GY		Anth Date	Ears/ Plant	Husk		Ear Rot	GLS	P.sorg	E.turc	Num Plants	Ear Aspect	Plant Aspect
		RelGY	Rank	StdDev	FW	t/ha			%	%							
		%	Avg	StdDev	t/ha	d	#	%	%	%	1-5	1-5	1-5	#	1-5	1-5	
Entries with anthesis date between 71 - 72 days																	
21	CML488/CZL00003/CKL05019	103	20	12	11.6	79	1.0	22	10	2.7	1.9	2.8	41	1.5	1.8		
27	CML202/CML395/CKL08085	92	25	10	7.5	79	1.0	12	34	3.8	1.9	2.0	41	3.0	2.7		
34	H513	95	27	8	7.4	79	1.2	18	31	3.9	2.7	2.1	41	2.8	3.0		
37	DK8031	81	31	11	6.3	78	0.9	28	35	3.5	2.2	2.5	39	3.0	2.2		
Maturity group average					8.2	78.8	1.0	20	28	3.5	2.2	2.4	41	2.6	2.4		
Entries with anthesis date between 73 - 74 days																	
6	CML442/CML444/CKL08002	119	12	8	12.0	78	1.1	11	24	3.0	2.5	2.3	41	2.5	2.0		
16	CML442/CML445/CKL05022	115	14	8	11.4	80	1.0	32	17	3.2	1.6	2.0	42	2.5	2.0		
15	CML442/CML445/CKL05017	103	17	12	11.8	80	1.0	35	10	3.0	1.8	2.0	42	2.3	2.0		
11	CML312/CML442/CKL05015	97	18	11	10.1	82	1.0	15	8	4.3	1.4	1.9	41	2.0	2.5		
25	CML444/CML489/CKL05019	111	18	11	11.4	83	1.1	12	6	2.9	2.4	2.7	39	1.5	2.3		
8	CML442/CML444/CKL08063	104	19	11	7.0	79	1.0	14	37	3.5	1.6	2.5	40	2.8	2.8		
19	CZL00003/CML444/CKL05019	98	20	12	11.5	82	1.0	11	15	2.3	2.6	2.8	41	1.5	2.0		
7	CML442/CML444/CKL08006	112	21	10	9.9	81	1.1	25	18	3.6	1.7	1.9	41	3.0	2.0		
20	CZL00003/CML444/CKL05017	95	22	8	10.1	82	1.0	47	9	2.6	2.5	2.5	40	2.0	2.2		
31	CKL05005/CKL05017/CML442/CML444	101	22	7	9.8	80	1.0	11	13	3.0	1.7	2.0	41	1.8	2.3		
33	CKL05005/CKL05022/CML442/CML444	99	22	10	8.6	80	1.0	7	17	3.2	1.7	2.2	41	2.5	2.0		
40	LOCAL	87	27	14	11.6	83	1.1	7	9	2.4	1.6	2.0	41	1.5	2.0		
22	CML488/CZL00003/CKL05009	87	28	8	8.7	80	1.0	27	21	2.7	1.7	2.3	40	2.8	2.5		
Maturity group average					10.3	80.7	1.0	20	16	3.1	1.9	2.2	41	2.2	2.2		
Entries with anthesis date between 75 - 76 days																	
13	CML442/CML445/CKL05003	112	9	11	11.8	84	1.1	35	17	3.7	2.0	2.5	41	2.8	2.5		
29	CML442/CML444/CKL05003/CKL05017	119	12	9	11.9	83	1.1	19	5	3.3	1.5	1.9	40	1.5	1.7		
10	CML312/CML442/CKL05003	108	12	14	11.7	80	1.1	53	10	3.7	1.7	2.5	41	2.5	2.0		
12	CML312/CML442/CKL05022	116	14	10	11.0	83	1.0	20	10	3.1	2.2	2.3	41	1.5	2.5		
4	CML442/CML444/CKL05018	111	16	7	9.9	81	1.0	47	16	3.2	1.4	2.1	39	2.5	2.5		
3	CML442/CML444/CKL05017	99	18	13	11.5	83	1.0	22	11	2.3	1.9	1.9	41	1.8	2.5		
18	CZL00003/CML444/CKL05022	116	18	12	10.7	82	1.0	37	7	2.3	1.8	2.3	41	1.8	2.5		
35	WH403	105	19	11	10.0	85	1.0	47	6	3.5	2.3	2.0	41	2.5	2.2		
5	CML442/CML444/CKL05022	105	19	11	12.1	84	1.0	20	8	3.5	1.8	2.5	42	1.8	2.5		
2	CML442/CML444/CKL05015	102	20	11	10.4	82	1.1	14	14	3.6	1.5	2.2	41	2.5	2.2		
14	CML442/CML445/CKL05004	93	21	10	8.8	87	1.1	29	12	3.8	1.5	2.3	40	3.0	2.0		
28	CKL05003/CKL05005/CML442/CML444	95	22	10	9.1	84	1.1	15	16	3.6	1.7	2.1	42	2.0	2.3		
24	CML444/CML489/CKL05017	94	24	9	9.4	85	1.0	29	11	2.5	1.4	2.8	42	2.0	2.2		
9	CML202/CML395/CKL05024	96	24	9	10.7	81	1.0	22	13	2.9	1.4	2.1	41	1.5	1.5		
36	WH505	92	25	9	7.0	84	1.1	2	35	4.0	2.4	2.7	38	3.0	2.5		
32	CKL05005/CKL05018/CML442/CML444	87	29	7	8.3	83	1.0	17	17	2.8	1.7	2.5	40	2.5	2.3		
39	HYTECH 1100	61	34	6	1.6	81	0.6	14	35	3.1	2.8	4.9	41	3.8	3.5		
38	HYTECH 2031	58	35	8	1.5	85	0.7	22	46	3.1	2.8	4.9	32	3.5	3.5		

ECA-ILHT11

Grain yield and other agronomic traits of 33 intermediate to late maturing three-way and double cross hybrids at 26 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 1C

Kitale, Kenya OPT

Entry	Pedigree	Across			GY	Anth	Ears/	Husk	Ear	GLS	P.sorg	E.turc	Num	Ear	Plant
		RelGY	Rank	StdDev	FW	Date	Plant	Cover	Rot				Plants	Aspect	Aspect
		%	Avg		t/ha	d	#	%	%	1.5	1.5	1.5	#	1.5	1.5
Maturity group average					9.3	83.1	1.0	26	16	3.2	1.9	2.6	40	2.3	2.4
Entries with anthesis date between 77 - 78 days															
30	CKL05003/CKL05022//CML442/CML444	115	13	12	11.5	85	1.1	27	7	3.5	2.1	2.1	41	1.8	2.0
17	CZL00003/CML444/CKL05003	110	15	12	11.8	86	1.1	26	1	3.3	1.9	2.6	41	1.8	2.8
23	CML444/CML489/CKL05003	106	17	11	10.7	80	1.1	33	18	3.2	1.7	2.3	41	2.0	2.2
1	CML442/CML444/CKL05004	102	20	12	9.1	84	1.1	34	18	3.8	1.6	2.5	41	2.8	2.8
26	CML444/CML489/CKL05022	100	21	12	8.7	85	1.0	37	21	2.6	1.9	2.2	40	2.5	2.5
Maturity group average					10.4	84.0	1.1	32	13	3.3	1.9	2.3	41	2.2	2.5
Mean		100	21	10	9.64	82.0	1.02	23.9	16.7	3.2	1.9	2.4	40.5	2.3	2.3
LSD (0.05)		13	6	2	1.59	3.7	0.15	15.3	13.4	0.7	0.7	0.6	1.9	0.7	0.5
Min		58	9	6	1.50	77.7	0.6	1.9	1.4	2.3	1.4	1.9	32.3	1.5	1.5
Max		119	35	14	12.14	86.6	1.2	52.7	46.3	4.3	2.8	4.9	42.0	3.8	3.5
NumSignificantSites		13	13	13	1	1	1	1	1	1	1	1	1	1	1

ECA-ILVT11

Grain yield and agronomic traits of 21 late maturing open-pollinated varieties (OPVs) at 17 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 2C

Entry	Pedigree	Kiboko, Kenya MDS							Kiboko, Kenya Low N				Weruweru, Tanzania OPT			Thika, Kenya OPT			
		Across		Grain Yield		Ear	Leaf	Grain Yield		Ear	Leaf	GY	Anth	Grain	GY		Lodging	Husk	Plant
		RelGY	Rank	GW	FW	Position	Senes	GW	FW	Height	Senes	FW	Date	Text	FW	Root	Cover	Aspect	
		%	Avg	StdDev	t/ha	t/ha	0-1	1-10	t/ha	t/ha	cm	1-10	t/ha	d	1-5	t/ha	%	%	1-5
Entries with anthesis date between 74 - 75 days																			
16	ECA-VL42-#	115	6	2	2.5	2.5	0.5	6.1	1.6	1.8	52	3.9	5.2	55	2.2	7.5	7	20	1.4
17	ECA-VL43-#	123	7	6	3.8	3.6	0.6	5.5	2.1	2.1	55	4.3	4.5	56	2.0	6.2	13	14	1.5
18	ECA-VL44-#	113	7	6	2.8	2.5	0.5	5.4	2.6	2.7	54	4.5	5.5	56	2.7	6.2	4	7	1.5
22	H513	116	8	5	3.3	3.1	0.6	5.6	2.0	1.6	55	4.7	5.0	55	2.2	6.9	0	18	2.3
20	ECAVL1/ECAVL18	108	8	5	2.6	2.4	0.6	6.1	2.1	2.6	54	4.4	4.0	58	1.5	5.4	26	7	2.2
4	ECA-VL25-#	109	9	4	2.5	2.4	0.5	6.3	1.9	2.1	58	5.1	4.6	57	3.2	5.9	25	5	1.9
8	ECA-VL30-#	105	10	3	2.2	2.5	0.5	6.1	1.7	1.4	62	5.8	4.3	56	1.8	5.8	15	6	2.5
24	LOCAL	121	11	10	2.2	2.1	0.6	5.3	2.2	2.3	53	4.2	4.1	58	3.7	6.9	11	20	2.6
19	ECA-VL45-#	99	13	4	2.0	2.1	0.5	5.9	3.0	2.4	57	3.1	5.3	56	2.5	6.3	7	10	1.9
5	ECA-VL27-#	91	15	5	1.8	1.8	0.6	6.5	2.0	2.4	63	5.2	4.1	55	1.5	6.0	20	6	1.8
2	ECA-VL22-#	91	17	6	2.4	2.3	0.5	6.2	1.9	2.3	54	4.6	4.1	57	2.0	6.0	19	12	1.3
15	ECA-VL41-#	88	17	4	1.3	1.4	0.5	6.7	2.0	1.9	54	5.1	4.7	55	1.5	6.3	19	10	1.0
10	ECA-VL35-#	87	17	3	1.6	1.6	0.5	7.3	1.3	1.8	48	5.2	3.8	57	1.0	5.3	16	13	2.1
3	ECA-VL24-#	84	18	5	2.2	2.2	0.5	6.0	1.4	1.6	44	4.9	4.5	56	2.7	5.6	9	7	1.3
13	ECA-VL38-#	81	19	7	1.3	1.2	0.6	6.7	1.4	1.2	45	4.6	4.3	56	2.3	6.5	0	14	1.4
9	ECA-VL33-#	80	20	5	1.3	1.3	0.5	6.5	1.6	1.6	50	4.8	3.4	55	2.3	5.6	12	20	1.7
Maturity group average					2.2	2.2	0.6	6.1	1.9	2.0	54	4.6	4.5	56	2.2	6.1	13	12	1.8
Entries with anthesis date = 76 days																			
21	ECAVL2/ECAVL18	107	8	6	1.6	1.6	0.6	5.9	1.5	1.3	55	4.9	4.7	58	1.2	7.4	6	13	1.7
12	ECA-VL37-#	101	12	8	1.6	1.6	0.6	5.5	2.6	2.1	74	5.8	4.4	56	2.7	6.3	6	17	1.9
7	ECA-VL29-#	102	12	8	1.9	1.7	0.5	6.0	2.4	2.2	55	4.5	3.9	60	2.5	6.8	5	20	1.4
14	ECA-VL39-#	89	17	4	1.7	1.7	0.5	4.8	2.2	2.0	59	4.4	3.9	58	2.5	6.3	22	18	3.2
1	ECA-VL21-#	82	18	5	1.5	1.7	0.5	5.5	1.4	1.6	56	4.5	4.2	57	2.3	6.2	13	18	2.3
11	ECA-VL36-#	82	18	4	1.3	1.3	0.5	5.0	1.3	1.8	51	4.4	3.7	58	3.3	5.5	15	27	2.2
Maturity group average					1.6	1.6	0.6	5.5	1.9	1.8	58	4.7	4.1	58	2.4	6.4	11	19	2.1
Entries with anthesis date = 78 days																			
23	WH504	129	4	4	3.1	3.0	0.6	4.9	2.0	1.7	60	4.2	5.5	60	3.5	7.1	20	11	1.0
6	ECA-VL28-#	97	11	6	1.7	1.9	0.7	5.5	2.2	2.3	64	4.1	4.5	60	2.3	6.8	14	14	2.2
Maturity group average					2.4	2.4	0.6	5.2	2.1	2.0	62	4.2	5.0	60	2.9	6.9	17	12	1.6
Mean		100	13	5	2.08	2.07	0.56	5.9	1.93	1.95	55.4	4.6	4.43	56.9	2.3	6.28	12.5	13.4	1.8
LSD (0.05)		15	5	2	0.74	0.62	0.07	1.0	1.01	0.78	10.6	0.7	1.05	2.3	0.7	1.57	13.5	10.8	0.9
Min		80	4	2	1.27	1.21	0.5	4.8	1.27	1.20	43.9	3.1	3.43	54.9	1.0	5.30	0.0	5.0	1.0
Max		129	20	10	3.78	3.64	0.7	7.3	3.02	2.68	74.0	5.8	5.53	60.2	3.7	7.55	26.4	27.0	3.2
NumSignificantSites		6	6	6	1	1	1	1	0	0	1	1	0	1	1	0	1	1	1

Entry	Pedigree	Kutus, Kenya OPT						Namulonge, Uganda OPT			Embu, Kenya OPT						Mwele, Tanzania OPT		
		Across		GY	Ear	Ears/	GY	Grain	GY	Anth	Days to	ASI	Lodging	Ear	Ear	Ear	Grain	Num	
		RelIGY	Rank	FW	Height	Plant	FW	Text	FW	Date	Silk		Stem	Rot	Aspect	FW	Text	Plants	
	%	Avg	StdDev	t/ha	cm	#	t/ha	1-5	t/ha	d	d	d	%	%	1-5	t/ha	1-5	#	
Entries with anthesis date between 74 - 75 days																			
16	ECA-VL42-#	115	6	2	3.2	109	0.8	6.8	2.3	5.8	72	70	-1	5	12	2.8	3.9	2.3	41
17	ECA-VL43-#	123	7	6	4.7	110	1.0	7.5	2.0	6.1	71	71	0	2	8	2.5	3.4	2.5	42
18	ECA-VL44-#	113	7	6	4.0	95	0.8	5.6	1.8	6.5	70	71	0	0	11	2.5	3.2	2.5	42
22	H513	116	8	5	4.7	137	0.7	5.8	2.3	5.3	72	71	-1	5	24	3.5	3.8	2.3	41
20	ECAVL1/ECAVL18	108	8	5	2.9	127	0.7	6.2	1.8	6.4	70	72	2	0	9	2.3	3.8	1.3	42
4	ECA-VL25-#	109	9	4	3.6	122	0.8	7.6	2.5	5.3	72	73	1	0	21	3.1	3.3	2.3	40
8	ECA-VL30-#	105	10	3	3.2	122	0.7	7.3	2.5	5.3	72	75	2	2	16	3.5	2.8	1.8	41
24	LOCAL	121	11	10	3.9	136	0.9	5.4	2.3	5.7	65	72	6	0	14	2.8	2.5	1.8	37
19	ECA-VL45-#	99	13	4	3.7	122	0.8	6.4	2.5	5.1	72	72	0	5	25	3.2	3.2	2.3	42
5	ECA-VL27-#	91	15	5	2.4	91	0.6	5.6	2.0	6.0	72	73	2	7	6	2.2	3.5	1.8	41
2	ECA-VL22-#	91	17	6	3.7	106	0.7	5.7	2.0	5.5	70	72	2	0	16	2.7	3.1	1.5	42
15	ECA-VL41-#	88	17	4	2.9	120	0.9	5.4	1.8	4.4	72	73	1	7	16	3.0	2.3	1.5	41
10	ECA-VL35-#	87	17	3	5.7	112	0.5	5.9	1.5	4.7	70	72	2	0	8	2.7	2.6	1.3	42
3	ECA-VL24-#	84	18	5	1.9	93	0.6	5.9	2.5	3.9	72	75	3	1	27	3.8	3.0	2.8	42
13	ECA-VL38-#	81	19	7	2.3	125	0.6	4.6	1.9	4.2	71	72	0	0	16	3.4	3.2	1.8	41
9	ECA-VL33-#	80	20	5	2.7	100	0.8	4.9	2.0	5.3	72	73	2	5	11	2.5	3.5	1.8	42
Maturity group average					3.5	114	0.7	6.0	2.1	5.3	71	72	1	2	15	2.9	3.2	1.9	41
Entries with anthesis date = 76 days																			
21	ECAVL2/ECAVL18	107	8	6	3.0	118	0.7	6.3	1.5	6.1	73	75	3	3	8	2.3	2.5	1.5	42
12	ECA-VL37-#	101	12	8	3.0	104	0.8	6.9	2.0	5.2	72	73	0	3	9	2.9	2.6	2.8	42
7	ECA-VL29-#	102	12	8	3.8	110	0.8	7.3	2.8	5.0	74	75	2	6	27	3.3	1.9	3.0	42
14	ECA-VL39-#	89	17	4	3.4	118	0.9	5.0	2.3	5.0	72	74	2	2	18	3.0	2.3	2.5	42
1	ECA-VL21-#	82	18	5	4.6	129	1.1	5.8	2.3	5.2	74	74	0	2	16	3.3	4.0	1.5	42
11	ECA-VL36-#	82	18	4	3.2	95	0.8	5.9	2.8	3.9	72	76	3	0	30	3.7	3.0	2.8	42
Maturity group average					3.5	112	0.8	6.2	2.3	5.1	73	74	2	3	18	3.1	2.7	2.3	42
Entries with anthesis date = 78 days																			
23	WH504	129	4	4	2.6	103	0.8	7.9	2.3	6.8	75	78	1	0	6	2.5	3.4	2.8	42
6	ECA-VL28-#	97	11	6	2.6	130	0.7	6.8	2.3	6.2	77	77	0	2	9	2.8	2.5	2.0	42
Maturity group average					2.6	117	0.7	7.4	2.3	6.5	76	77	1	1	8	2.7	2.9	2.4	42
Mean		100	13	5	3.41	114.0	0.76	6.19	2.2	5.38	71.8	73.3	1.5	2.1	15.2	2.9	3.06	2.1	41.3
LSD (0.05)		15	5	2	1.95	24.9	0.21	1.40	0.6	1.23	0.9	2.4	2.2	3.9	9.8	0.8	1.59	0.8	2.0
Min		80	4	2	1.94	90.8	0.5	4.63	1.5	3.91	65.3	70.5	-0.7	0.0	6.0	2.2	1.92	1.3	36.5
Max		129	20	10	5.74	137.2	1.1	7.94	2.8	6.81	77.2	77.7	5.6	7.5	30.5	3.8	4.01	3.0	42.0
NumSignificantSites		6	6	6	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1

ECA-ILVT11

Grain yield and agronomic traits of 21 late maturing open-pollinated varieties (OPVs) at 17 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; RDS = Random Drought Stress; OPT= Optimum (well-fertilized/rainfed) management

TABLE 2C

Entry	Pedigree	Serere, Uganda OPT							Mlingano, Tanzania OPT					Njiro, Tanzania RDS		Chiredzi, Zimbabwe MDS					
		Across			GY	Anth	Days to	ASI	Husk	GY	Plant	Lodging		Grain	Num	GY	Ears/	Grain Yield		Anth	Ear
		RelGY	Rank	StdDev								FW	Root					Text	Plants		
%	Avg		t/ha	d	d	d	%	t/ha	cm	%	1-5	#	t/ha	#	t/ha	d	%				
Entries with anthesis date between 74 - 75 days																					
16	ECA-VL42-#	115	6	2	8.3	60	60	0	17	3.4	162	20	2.3	41	0.0	0.1	0.6	95	15		
17	ECA-VL43-#	123	7	6	8.8	60	60	0	6	3.9	156	6	2.0	42	0.2	0.0	1.6	96	25		
18	ECA-VL44-#	113	7	6	8.6	59	59	0	8	2.9	146	19	2.3	41	0.1	0.1	2.0	93	26		
22	HS13	116	8	5	7.5	59	60	1	8	4.5	170	17	1.8	41	0.2	0.1	1.1	93	15		
20	ECAVL1/ECAVL18	108	8	5	7.3	61	61	0	1	3.3	211	15	1.5	42	0.1	0.1	2.1	93	11		
4	ECA-VL25-#	109	9	4	7.7	58	58	0	4	3.4	133	10	2.8	41	0.3	0.5	1.2	95	2		
8	ECA-VL30-#	105	10	3	7.8	61	61	0	10	2.9	169	6	1.5	42	0.0	0.0	1.4	96	17		
24	LOCAL	121	11	10	7.6	56	57	1	6	3.5	163	6	2.0	28	0.1	0.1	1.1	98	71		
19	ECA-VL45-#	99	13	4	7.2	59	59	0	17	3.0	163	9	2.0	40	0.4	0.1	2.5	94	10		
5	ECA-VL27-#	91	15	5	5.9	60	61	1	12	3.2	141	10	1.5	42	0.0	0.2	1.2	95	11		
2	ECA-VL22-#	91	17	6	5.5	60	60	0	10	3.3	155	18	1.3	40	0.0	0.1	0.2	95	5		
15	ECA-VL41-#	88	17	4	7.0	60	60	0	8	3.1	191	7	1.5	41	0.3	0.0	0.4	96	20		
10	ECA-VL35-#	87	17	3	8.8	59	59	0	11	1.9	121	7	1.3	38	0.0	0.0	0.5	95	15		
3	ECA-VL24-#	84	18	5	7.8	61	60	0	16	3.5	179	10	2.5	43	0.0	0.0	1.6	95	16		
13	ECA-VL38-#	81	19	7	7.7	58	58	0	7	3.5	169	5	1.5	42	0.4	0.3	1.5	95	5		
9	ECA-VL33-#	80	20	5	7.0	59	61	2	13	1.7	166	4	2.0	41	0.1	0.1	0.7	98	25		
Maturity group average					7.5	59	60	0	10	3.2	162	10	1.8	40	0.1	0.1	1.2	95	18		
Entries with anthesis date = 76 days																					
21	ECAVL2/ECAVL18	107	8	6	7.4	61	61	0	3	3.6	153	7	1.5	42	0.1	0.0	1.5	95	7		
12	ECA-VL37-#	101	12	8	5.4	60	61	0	8	3.6	181	8	2.0	43	0.0	0.0	1.2	97	14		
7	ECA-VL29-#	102	12	8	7.5	59	59	0	9	2.9	158	7	2.5	40	0.0	0.1	1.8	95	19		
14	ECA-VL39-#	89	17	4	8.0	61	61	0	10	2.1	152	10	2.3	41	0.1	0.0	1.3	95	14		
1	ECA-VL21-#	82	18	5	6.2	60	60	0	10	3.1	163	4	1.8	41	0.2	0.0	1.4	96	62		
11	ECA-VL36-#	82	18	4	7.0	60	60	0	26	3.4	151	3	2.5	41	0.2	0.1	1.0	96	21		
Maturity group average					6.9	60	60	0	11	3.1	159	6	2.1	41	0.1	0.1	1.4	95	23		
Entries with anthesis date = 78 days																					
23	WH504	129	4	4	8.5	62	63	1	10	3.7	176	12	2.3	41	0.0	0.0	1.6	98	14		
6	ECA-VL28-#	97	11	6	6.9	61	61	0	6	3.6	167	12	2.0	42	0.1	0.1	1.4	97	14		
Maturity group average					7.7	62	62	0	8	3.6	172	12	2.1	41	0.1	0.1	1.5	98	14		
Mean		100	13	5	7.38	59.8	60.0	0.3	9.8	3.21	162.4	9.4	1.9	40.6	0.12	0.09	1.29	95.3	19.0		
LSD (0.05)		15	5	2	2.62	1.8	1.6	0.8	9.4	2.11	24.5	9.0	0.8	4.1	0.26	0.13	1.17	2.7	29.8		
Min		80	4	2	5.38	56.1	56.8	-0.1	0.7	1.70	121.3	2.5	1.3	28.0	0.0	0.0	0.21	92.5	2.2		
Max		129	20	10	8.78	62.3	62.9	2.0	26.2	4.47	211.3	20.0	2.8	42.7	0.4	0.5	2.47	98.0	71.1		
NumSignificantSites		6	6	6	0	1	1	1	1	0	1	1	1	1	0	1	0	1	1		

ECA-ILVT11

Grain yield and agronomic traits of 21 late maturing open-pollinated varieties (OPVs) at 17 sites in Eastern and Southern Africa, 2011.

TABLE 2C

MDS= Managed Drought Stress; RDS = Random Drought Stress; OPT= Optimum (well-fertilized/rainfed) management

Entry	Pedigree	Karatu, Tanzania RDS			Handeni, Tanzania OPT					Kiboko, Kenya OPT		
		Across		GY	GY	Anth	Husk	Ear	E.turc	Num	GY	
		RelGY	Rank	FW	FW	Date	Cover	Rot	1-5	Plants	FW	
	%	Avg	StdDev	t/ha	t/ha	d	%	%		#	t/ha	
Entries with anthesis date between 74 - 75 days												
16	ECA-VL42-#	115	6	2	0.4	4.9	54	2	0	1.4	41	3.6
17	ECA-VL43-#	123	7	6		4.3	57	0	0	2.3	42	3.2
18	ECA-VL44-#	113	7	6	0.0	5.2	55	1	3	1.0	43	3.7
22	H513	116	8	5	0.0	5.1	56	1	0	1.7	42	3.1
20	ECAVL1/ECAVL18	108	8	5	0.0	5.5	54	0	0	1.6	42	3.3
4	ECA-VL25-#	109	9	4	0.4	4.6	57	0	0	1.1	41	3.2
8	ECA-VL30-#	105	10	3	0.1	4.9	56	0	0	1.3	42	3.0
24	LOCAL	121	11	10	0.2	3.0	55	1	2	2.8	31	4.2
19	ECA-VL45-#	99	13	4	0.1	4.5	56	0	0	1.0	42	2.0
5	ECA-VL27-#	91	15	5	0.2	4.1	57	0	0	1.3	42	3.2
2	ECA-VL22-#	91	17	6	0.1	4.0	56	1	0	2.1	42	2.9
15	ECA-VL41-#	88	17	4	0.3	4.6	56	0	0	1.0	41	2.6
10	ECA-VL35-#	87	17	3	0.7	4.2	57	0	0	2.0	42	1.8
3	ECA-VL24-#	84	18	5	0.0	4.3	58	0	0	1.4	42	3.4
13	ECA-VL38-#	81	19	7	0.0	5.0	56	1	0	2.2	42	3.3
9	ECA-VL33-#	80	20	5	0.1	4.1	58	1	0	1.1	42	2.8
Maturity group average					0.2	4.5	56	1	0	1.6	41	3.1
Entries with anthesis date = 76 days												
41	21 ECAVL2/ECAVL18	107	8	6		5.6	54	0	0	1.7	42	2.3
12	ECA-VL37-#	101	12	8	0.6	3.9	58	0	2	1.7	42	3.1
7	ECA-VL29-#	102	12	8	0.2	6.5	56	1	0	1.0	42	3.9
14	ECA-VL39-#	89	17	4	0.0	4.4	56	1	0	1.8	42	3.7
1	ECA-VL21-#	82	18	5	0.0	4.7	53	1	0	2.8	42	2.9
11	ECA-VL36-#	82	18	4	0.3	4.5	55	5	0	1.0	42	3.4
Maturity group average					0.2	4.9	56	1	0.3	1.7	42	3.2
Entries with anthesis date = 78 days												
23	WH504	129	4	4	0.1	4.6	59	0	0.0	2.1	42	3.3
6	ECA-VL28-#	97	11	6	0.0	4.8	57	0	0.0	2.1	42	3.2
Maturity group average					0.1	4.7	58	0	0.0	2.1	42	3.3
Mean		100	13	5	0.17	4.64	56.1	0.7	0.3	1.6	41.3	3.12
LSD (0.05)		15	5	2	0.61	0.97	3.0	1.8	1.3	1.0	1.2	1.41
Min		80	4	2	0.00	3.03	53.4	0.0	0.0	1.0	30.9	1.77
Max		129	20	10	0.72	6.51	58.9	4.9	3.0	2.8	42.6	4.19
NumSignificantSites		6	6	6	0	1	0	1	1	1	1	0

Entry	Pedigree	Elgon Downs, Kenya OPT										Kiboko, Kenya OPT			Kagio, Kenya OPT	
		Across			Grain Yield		Anth Date	Days to Silk	Lodging Stem	Ears/ Plant	Husk Cover	P.sorg	GY FW	Anth Date	Days to Silk	GY FW
		RelGY	Rank	StdDev	GW t/ha	FW t/ha										
		%	Avg		t/ha	t/ha	d	d	%	#	%	1-5	t/ha	d	d	t/ha
Entries with anthesis date between 60 - 61 days																
17	ECA-EE55-#	115	7	6	4.4	4.3	76	76	7	1	8	3.1	5.2	62	64	3.1
21	SYNTH2008-EECML445-#	107	8	0	5.1	5.0	72	75	8	1	4	2.7	4.2	64	66	4.6
1	ZIMLINE/KAT BCI - 8/SYNTH2006-#-#	109	10	6	4.6	4.5	73	72	8	1	13	2.0	3.8	66	68	3.1
16	SYNTH2006-#	94	14	3	5.3	5.1	71	71	.	1	10	2.6	3.8	64	66	4.0
22	SYNTH2008-EEAC-#	94	15	4	5.2	5.4	73	74	2	1	2	2.3	3.6	63	66	4.1
8	M37/MORO BCI - 5/SYNTH2006-#-#	94	15	6	4.8	4.6	73	75	2	1	11	2.5	3.9	64	67	3.4
20	SYNTH2008-EECML440-#	86	19	1	5.4	5.1	73	74	7	1	7	2.0	3.2	64	67	4.2
Maturity group average					5.0	4.9	73	74	6	1	8	2.5	4.0	64	66	3.8
Entries with anthesis date between 62 - 63 days																
6	ZIMLINE/MORO BCI - 24/SYNTH2006-#-#	125	4	1	4.8	4.7	75	76	10	1	9	2.6	4.9	65	68	4.2
5	ZIMLINE/MORO BCI - 1/SYNTH2006-#-#	117	6	1	5.6	5.4	75	77	5	1	8	2.4	4.3	66	67	4.1
10	ZIMLINE/KAT BCI - 8-#-#	107	10	6	4.5	4.4	75	75	2	1	16	2.1	4.6	67	69	3.6
19	SYNTH2008-EEDR-#	102	13	17	4.5	4.4	75	77	7	1	3	3.2	2.8	65	71	3.9
15	ZIMLINE/MORO BCI - 24-#-#	96	13	4	4.5	4.8	77	79	10	1	6	2.5	3.6	66	68	3.5
4	ZIMLINE/KAT BCI - 15/SYNTH2006-#-#	100	13	10	4.3	4.2	77	78	.	1	18	2.4	4.4	66	67	3.8
13	M37/MORO BCI - 1-#-#	102	13	13	4.3	4.3	76	75	6	1	8	2.0	4.8	66	68	3.9
14	ZIMLINE/MORO BCI - 1-#-#	93	16	9	5.2	5.0	76	78	8	1	20	2.4	3.2	66	69	3.3
9	AMSECA/KAT BCI - 2/SYNTH2006-#-#	88	18	1	4.7	4.6	74	74	8	1	11	2.1	3.4	65	68	2.7
7	M37/MORO BCI - 1/SYNTH2006-#-#	90	19	3	4.3	4.0	74	78	4	1	3	2.6	3.6	66	69	4.1
12	ZIMLINE/KAT BCI - 25-#-#	85	20	6	5.5	5.3	76	75	3	1	32	1.8	2.9	65	68	4.0
18	SYNTH2008-EE55-#	79	22	1	6.2	6.2	75	75	.	1	9	2.1	3.2	63	66	4.1
2	ZIMLINE/KAT BCI - 10/SYNTH2006-#-#	75	24	1	5.1	5.1	75	79	10	1	14	2.6	3.1	66	70	4.2
Maturity group average					4.9	4.8	75	76	7	1	12	2.4	3.7	66	68	3.8
Entries with anthesis date between 64 - 65 days																
3	ZIMLINE/KAT BCI - 13/SYNTH2006-#-#	99	12	2	4.9	4.9	80	81	1	1	5	2.1	4.0	66	68	4.4
11	ZIMLINE/KAT BCI - 13-#-#	82	20	7	5.4	5.5	79	82	6	1	18	2.1	3.7	69	72	4.0
Maturity group average					5.1	5.2	80	82	3	1	11	2.1	3.8	67	70	4.2
Entries with anthesis date > 65 days																
23	DH04	141	2	1	6.0	6.4	89	89	3	1	3	2.6	6.0	71	73	3.6
24	DUMA43	117	6	5	7.8	7.9	83	78	2	1	14	1.6	4.1	71	73	3.9
25	LOCAL	102	10	4	5.7	6.7	90	91	2	2	2	1.5	3.8	73	76	4.6
Maturity group average					6.5	7.0	87	86	2	1	6	1.9	4.6	72	74	4.0
Mean		100	13	5	5.12	5.11	76.2	77.1	5.4	1.11	9.9	2.3	3.91	66.0	68.6	3.86
LSD (0.05)		15	6	4	3.17	2.79	4.4	6.6	4.7	0.26	10.7	0.6	1.59	2.7	4.4	1.18
Min		75	2	0	4.25	3.98	71.0	71.0	0.7	1.0	1.5	1.5	2.76	62.0	64.0	2.73
Max		141	24	17	7.84	7.92	90.0	90.5	10.5	1.7	32.0	3.2	6.03	73.3	75.8	4.63
NumSignificantSites		2	2	2	0	0	1	1	1	1	1	1	1	1	1	0

Entry	Pedigree	Kiboko, Kenya Low N										Mlingano, Tanzania OPT		Karatu, Tanzania	
		RelGY	Across		Grain Yield		Anth Date	Ear Height	Ear Position	Husk Cover	Ear Rot	Grain Text	FW	Stem	FW
			Rank		GW	FW									
		%	Avg	StdDev	t/ha	t/ha	d	cm	0-1	%	%	1-5	t/ha	%	t/ha
Entries with anthesis date between 60 - 61 days															
17	ECA-EE55-#	115	7	6	2.1	6.1	49	45	0.4	3	6	2.5	4.0	26	2.8
21	SYNTH2008-EECML445-#	107	8	0	2.0	5.8	51	49	0.4	0	17	2.5	4.3	37	3.0
1	ZIMLINE/KAT BCI - 8/SYNTH2006-#-#	109	10	6	2.7	7.6	48	49	0.4	6	8	2.0	4.8	22	2.2
16	SYNTH2006-#	94	14	3	2.2	6.2	49	53	0.5	5	9	2.0	3.6	26	2.8
22	SYNTH2008-EEAC-#	94	15	4	2.9	9.0	47	72	0.5	5	7	2.5	3.9	24	3.2
8	M37/MORO BCI - 5/SYNTH2006-#-#	94	15	6	2.9	8.5	49	56	0.5	1	14	2.0	3.6	26	2.6
20	SYNTH2008-EECML440-#	86	19	1	2.9	9.9	48	50	0.4	3	17	2.0	3.6	32	2.6
Maturity group average					2.5	7.6	49	53	0.4	3	11	2.2	4.0	28	2.7
Entries with anthesis date between 62 - 63 days															
6	ZIMLINE/MORO BCI - 24/SYNTH2006-#-#	125	4	1	2.8	8.0	51	60	0.5	1	11	2.0	5.0	11	2.5
5	ZIMLINE/MORO BCI - 1/SYNTH2006-#-#	117	6	1	2.4	7.0	50	49	0.4	4	9	2.0	5.0	12	2.4
10	ZIMLINE/KAT BCI - 8-#-#	107	10	6	3.7	10.6	48	57	0.4	4	9	3.0	3.9	32	2.5
19	SYNTH2008-EEDR-#	102	13	17	3.4	10.1	49	55	0.4	4	6	3.0	5.4	15	2.0
15	ZIMLINE/MORO BCI - 24-#-#	96	13	4	2.4	7.4	52	54	0.4	8	15	2.5	4.0	34	3.4
4	ZIMLINE/KAT BCI - 15/SYNTH2006-#-#	100	13	10	2.4	7.0	50	54	0.4	6	20	2.0	3.5	17	3.1
13	M37/MORO BCI - 1-#-#	102	13	13	1.3	5.1	50	40	0.4	5	20	2.0	3.3	15	2.7
14	ZIMLINE/MORO BCI - 1-#-#	93	16	9	2.4	7.1	50	52	0.4	11	12	2.5	4.2	22	2.4
9	AMSECA/KAT BCI - 2/SYNTH2006-#-#	88	18	1	2.0	5.7	50	51	0.4	4	12	2.0	3.6	31	2.5
7	M37/MORO BCI - 1/SYNTH2006-#-#	90	19	3	2.3	6.4	50	43	0.4	3	7	2.0	3.5	31	2.8
12	ZIMLINE/KAT BCI - 25-#-#	85	20	6	1.9	5.5	52	40	0.4	10	25	2.5	3.9	29	2.3
18	SYNTH2008-EE55-#	79	22	1	2.1	5.9	50	55	0.5	5	13	2.0	3.1	29	2.03
2	ZIMLINE/KAT BCI - 10/SYNTH2006-#-#	75	24	1	2.2	6.4	51	53	0.5	4	6	2.0	2.8	22	3.04
Maturity group average					2.4	7.1	50	51	0.4	5	13	2.3	3.9	23	2.6
Entries with anthesis date between 64 - 65 days															
3	ZIMLINE/KAT BCI - 13/SYNTH2006-#-#	99	12	2	2.8	8.1	51	56	0.5	5	10	2.0	3.9	20	2.8
11	ZIMLINE/KAT BCI - 13-#-#	82	20	7	3.3	9.8	52	63	0.5	6	13	3.0	2.7	18	3.2
Maturity group average					3.0	9.0	51	60	0.5	6	11	2.5	3.3	19	3.0
Entries with anthesis date > 65 days															
23	DH04	141	2	1	2.3	7.4	61	56	0.4	8	28	2.5	5.2	15	2.3
24	DUMA43	117	6	5	2.2	6.8	55	55	0.4	16	31	2.0	5.2	15	2.9
25	LOCAL	102	10	4	3.4	10.7	61	60	0.5	0	17	3.0	4.3	15	2.7
Maturity group average					2.6	8.3	59	57	0.4	8	25	2.5	4.9	15	2.7
Mean		100	13	5	2.51	7.53	51.0	53.0	0.43	5.1	13.6	2.3	4.01	23.0	2.67
LSD (0.05)		15	6	4	1.47	4.35	2.1	11.6	0.05	6.9	13.0	0.7	1.26	12.9	1.18
Min		75	2	0	1.33	5.05	47.2	39.7	0.4	0.0	5.6	2.0	2.73	10.8	2.0
Max		141	24	17	3.69	10.72	61.2	71.8	0.5	16.5	30.7	3.0	5.36	37.1	3.4
NumSignificantSites		2	2	2	0	0	1	1	1	1	1	1	1	1	0

Entry	Pedigree	Kiboko, Kenya MDS										Handeni, Tanzania OPT					
		Across RelGY	Rank	Grain Yield		Anth Date	Plant Height	Ear Height	Lodging Stem	Leaf Senes	Grain Moist	GY FW	Days to Silk	Lodging Root	Grain Moist	Num Plants	
				StdDev	GW												FW
Entries with anthesis date between 60 - 61 days																	
17	ECA-EE55-#	115	7	6	2.5	3.1	59	197	101	11	7.3	12	3.1	57	14	18	40
21	SYNTH2008-EECL445-#	107	8	0	2.5	2.6	57	182	100	53	7.3	11	3.4	53	30	18	42
1	ZIMLINE/KAT BCI - 8/SYNTH2006-#-#	109	10	6	2.1	2.2	58	173	95	21	7.0	12	3.3	51	25	19	42
16	SYNTH2006-#	94	14	3	2.9	2.8	57	190	103	35	7.7	11	2.9	52	44	18	42
22	SYNTH2008-EEAC-#	94	15	4	2.7	2.7	57	176	100	53	8.1	11	2.7	53	27	21	42
8	M37/MORO BCI - 5/SYNTH2006-#-#	94	15	6	3.0	2.7	58	186	97	57	7.2	12	3.0	53	25	20	41
20	SYNTH2008-EECL440-#	86	19	1	3.2	3.1	56	187	103	67	7.4	11	3.1	56	31	19	41
Maturity group average					2.7	2.7	57	184	100	42	7.4	11	3.1	54	28	19	41
Entries with anthesis date between 62 - 63 days																	
6	ZIMLINE/MORO BCI - 24/SYNTH2006-#-#	125	4	1	2.1	2.0	60	184	107	49	7.1	12	2.6	56	32	22	42
5	ZIMLINE/MORO BCI - 1/SYNTH2006-#-#	117	6	1	2.9	2.9	59	199	87	53	7.3	13	2.9	54	33	20	39
10	ZIMLINE/KAT BCI - 8-#-#	107	10	6	2.1	2.2	58	176	97	26	6.9	12	3.0	54	19	21	42
19	SYNTH2008-EEDR-#	102	13	17	2.4	2.4	59	195	90	40	7.3	12	3.6	54	12	19	41
15	ZIMLINE/MORO BCI - 24-#-#	96	13	4	2.2	2.2	59	180	99	43	6.6	12	3.4	55	18	21	42
4	ZIMLINE/KAT BCI - 15/SYNTH2006-#-#	100	13	10	2.3	2.3	58	184	100	50	7.2	12	3.5	51	27	17	42
13	M37/MORO BCI - 1-#-#	102	13	13	2.6	2.2	60	189	92	37	7.3	12	2.9	56	15	17	41
14	ZIMLINE/MORO BCI - 1-#-#	93	16	9	2.5	2.5	60	194	120	58	7.5	12	3.2	52	28	19	42
9	AMSECA/KAT BCI - 2/SYNTH2006-#-#	88	18	1	2.0	2.1	58	201	113	34	7.4	12	2.7	56	28	21	41
7	M37/MORO BCI - 1/SYNTH2006-#-#	90	19	3	2.5	2.4	59	193	99	37	7.1	12	3.4	56	27	17	41
12	ZIMLINE/KAT BCI - 25-#-#	85	20	6	2.2	2.2	60	172	89	45	7.6	12	3.0	56	22	19	42
18	SYNTH2008-EE55-#	79	22	1	2.2	2.2	59	185	95	57	7.9	11	3.1	54	42	18	41
2	ZIMLINE/KAT BCI - 10/SYNTH2006-#-#	75	24	1	1.8	1.8	58	162	98	51	8.0	11	3.5	54	32	17	42
Maturity group average					2.3	2.3	59	186	99	45	7.3	12	3.1	54	25	19	41
Entries with anthesis date between 64 - 65 days																	
3	ZIMLINE/KAT BCI - 13/SYNTH2006-#-#	99	12	2	2.1	2.1	60	188	103	47	7.1	11	3.1	54	24	15	41
11	ZIMLINE/KAT BCI - 13-#-#	82	20	7	1.9	2.0	62	220	113	39	6.3	12	2.9	56	34	22	34
Maturity group average					2.0	2.1	61	204	108	43	6.7	12	3.0	55	29	19	38
Entries with anthesis date > 65 days																	
23	DH04	141	2	1	2.3	2.5	68	215	120	38	5.6	16	3.7	60	10	24	42
24	DUMA43	117	6	5	2.3	2.2	64	187	99	7	5.2	13	3.2	59	4	22	42
25	LOCAL	102	10	4	1.4	1.3	54	177	94	60	9.0	10	4.2	59	16	22	38
Maturity group average					2.0	2.0	62	193	104	35	6.6	13	3.7	59	10	23	40
Mean		100	13	5	2.34	2.34	59.1	187.7	100.5	42.7	7.2	11.9	3.17	54.8	24.4	19.5	40.7
LSD (0.05)		15	6	4	1.11	1.00	1.5	19.2	15.3	28.4	0.9	1.4	1.05	3.9	13.9	3.9	2.7
Min		75	2	0	1.38	1.30	53.5	161.8	87.0	6.7	5.2	10.4	2.61	51.4	3.5	15.4	34.0
Max		141	24	17	3.16	3.07	67.5	219.7	120.2	67.0	9.0	15.6	4.16	60.3	43.5	24.1	42.0
NumSignificantSites		2	2	2	0	0	1	1	1	1	1	1	0	1	1	1	1

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

TABLE 4C

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

Entry	Pedigree	Melkasa, Ethiopia OPT											Shikusa, Kenya OPT			
		Across	GY		Anth	Days to	Ear	Ear	Lodging	P.sorg	Ear	GY	Days to	Grain	Ear	
		Rank	FW	t/ha	Date	Silk	Height	Position	Stem	1-5	Aspect	FW	Silk	Text	Aspect	
RelGY	Avg	StdDev	t/ha	d	d	cm	0-1	%	1-5	1-5	t/ha	d	1-5	1-5		
8	ECAVL17-#/CML440/CML445	113	8	5	9.8	75	75	89	0.5	0	1.1	2.8	3.5	75	2.4	2.6
7	ECAVL16-STR-#/CML440/CML445	110	10	8	9.1	76	76	95	0.4	0	1.5	3.0	4.4	74	2.0	2.8
6	ECAVL16-#/CML440/CML445	106	11	3	8.5	74	76	102	0.5	0	1.9	3.0	4.0	74	1.4	3.1
28	BH140	120	11	12	6.4	81	83	134	0.6	8	2.3	3.5	5.5	76	1.1	1.6
5	ECAVL18-#/P100C6-200-1-1-#-B'4/CML78-B	103	12	3	9.0	77	76	83	0.4	0	1.7	2.9	3.9	72	2.0	3.0
9	ECAVL18-#/CML440/CML445	102	14	9	7.1	76	77	88	0.5	0	1.6	3.0	2.8	75	1.8	3.0
10	NIP25-#/CML440/CML445	102	15	9	8.4	74	74	97	0.5	0	1.6	3.0	3.3	75	1.9	2.8
13	ECA-VL32/P100C6-200-1-1-#-B'4/CML78	88	19	7	8.3	77	78	90	0.5	0	1.8	2.5	2.3	72	2.1	3.0
1	ECA-VL21/P100C6-200-1-1-#-B'4/CML78	87	21	7	8.9	73	74	103	0.5	0	1.7	2.7	3.3	72	2.3	2.7
12	ECA-VL27/P100C6-200-1-1-#-B'4/CML78	82	22	6	8.8	78	73	104	0.5	3	1.8	2.5	4.4	76	2.0	3.0
					8.4	76	76	98	0.5	1	1.7	2.9	3.7	74	1.9	2.8
16	ECA-VL25/P300C5S1B-2-3-2##1-2-B'6/CML78	110	10	5	8.7	75	75	107	0.5	0	1.5	2.5	4.8	74	2.4	3.1
26	H513	104	13	7	9.0	74	75	105	0.5	8	1.8	2.2	3.5	76	2.3	3.0
4	ECAVL2-#/P100C6-200-1-1-#-B'4/CML78-B	96	15	6	9.1	75	75	104	0.5	2	1.7	2.7	2.4	76	2.1	3.0
14	ECA-VL37/P100C6-200-1-1-#-B'4/CML78	100	15	10	8.5	76	77	90	0.5	0	1.6	3.3	2.3	75	2.3	3.0
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	7.7	78	79	100	0.5	2	1.9	2.7	3.4	75	2.3	2.7
17	ECA-VL29/P300C5S1B-2-3-2##1-2-B'6/CML78	90	19	6	7.8	76	77	91	0.5	2	2.0	3.0	5.2	74	2.4	2.4
11	ECA-VL24/P100C6-200-1-1-#-B'4/CML78	86	22	5	8.3	76	77	87	0.5	2	2.0	2.8	2.6	75	2.4	2.9
15	ECA-VL22/P300C5S1B-2-3-2##1-2-B'6/CML78	85	22	4	7.6	76	77	96	0.5	3	1.8	2.7	3.9	76	2.2	2.3
18	ECA-VL38/P300C5S1B-2-3-2##1-2-B'6/CML78	83	24	5	7.1	77	78	99	0.5	0	2.0	2.9	3.9	75	1.9	2.4
					8.2	76	76	98	0.5	2	1.8	2.8	3.6	75	2.3	2.8
24	NIP25-#-#-#/CML442/CML444	113	8	7	9.6	78	79	105	0.5	0	1.5	3.2	5.5	75	2.3	2.8
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	9.6	77	77	132	0.6	2	1.9	2.8	4.0	77	1.8	2.7
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B'6/CML78	98	13	7	9.3	77	76	93	0.5	0	1.4	2.8	3.2	75	2.4	2.9
25	ECA-VL29	95	16	6	8.3	79	80	104	0.5	2	1.5	3.0	4.7	77	2.4	3.2
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	8.5	78	79	105	0.5	0	1.2	3.0	4.3	76	2.5	2.8
					9.1	77	78	108	0.5	1	1.5	3.0	4.4	76	2.3	2.9
27	WH504	137	2	1	10.3	80	81	122	0.6	0	1.1	2.5	3.4	76	2.4	2.7
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	9.6	79	80	101	0.5	2	1.3	2.7	3.6	77	2.7	2.9
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	7.8	80	81	101	0.5	2	1.2	3.1	5.2	77	2.0	2.8
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	10.1	80	81	115	0.6	0	1.4	2.7	5.8	77	2.2	2.6
					9.5	80	81	110	0.5	1	1.2	2.8	4.5	77	2.3	2.7
Mean		100	14	7	8.62	76.6	77.3	101.5	0.49	1.2	1.6	2.8	3.91	74.9	2.1	2.8
LSD (0.05)		12	5	3	1.33	3.9	3.4	21.6	0.09	3.6	0.5	0.5	2.11	2.6	0.5	0.6
Min		82	2	1	6.36	73.0	73.0	83.1	0.4	0.0	1.1	2.2	2.29	71.5	1.1	1.6
Max		137	24	12	10.29	81.0	83.0	133.6	0.6	7.5	2.3	3.5	5.82	77.0	2.7	3.2
NumSignificantSites		4	4	4	1	1	1	1	1	1	1	1	0	1	1	1

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Namulonge, Uganda OPT									Kutus, Kenya OPT					P.sorg
		RelGY	Across		GY	Anth Date	Days to Silk	Husk Cover	Grain Text	Ear Aspect	Grain Yield		Anth Date	Days to Silk	Husk Cover	
			Rank	StdDev	FW						GW	FW				
%	Avg		t/ha	d	d	%	1-5	1-5	t/ha	t/ha	d	d	%	1-5		
8	ECAVL17-#/CML440/CML445	113	8	5	3.9	61	62	1	2.0	3.2	6.8	6.7	88	89	10	1.0
7	ECAVL16-STR-#/CML440/CML445	110	10	8	6.1	60	61	11	2.3	3.0	6.0	5.9	89	90	16	1.8
6	ECAVL16-#/CML440/CML445	106	11	3	5.0	60	60	18	1.8	3.0	5.7	5.6	89	90	19	2.0
28	BH140	120	11	12	3.1	66	65	5	2.0	3.1	9.4	9.1	94	94	11	1.5
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	4.7	61	62	20	2.3	2.9	5.7	5.7	88	89	12	2.0
9	ECAVL18-#/CML440/CML445	102	14	9	6.1	61	61	7	2.3	2.8	6.5	6.5	88	89	6	1.0
10	NIP25-#/CML440/CML445	102	15	9	4.9	59	60	17	2.3	2.9	6.2	6.3	87	89	11	1.3
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	4.7	62	61	27	2.0	3.2	3.9	3.9	88	88	5	2.8
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	6.1	61	61	19	2.0	2.8	4.4	4.6	87	87	8	2.3
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	5.3	60	61	17	2.0	2.7	3.7	3.6	89	91	3	2.0
					5.0	61	61	14	2.1	3.0	5.8	5.8	89	89	10	1.8
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	5.0	60	60	15	2.5	2.9	6.4	6.2	90	90	2	2.5
26	H513	104	13	7	4.0	63	63	21	2.0	2.7	6.8	6.6	89	91	8	1.8
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	4.0	62	61	6	2.0	3.1	4.8	4.8	92	93	0	2.5
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	6.5	62	62	18	2.3	3.1	4.7	4.7	89	89	7	2.8
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B/CML78	93	18	10	5.7	63	62	15	2.8	2.7	4.6	4.5	90	90	0	2.8
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	5.5	64	63	5	2.5	2.9	4.6	4.6	91	92	0	2.3
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	5.6	61	62	23	2.5	2.7	4.3	4.3	89	91	10	2.0
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	4.7	63	62	11	2.5	3.2	3.7	3.6	92	92	0	3.3
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	6.3	62	61	16	2.5	2.9	3.6	3.7	92	92	2	3.5
					5.3	62	62	14	2.4	2.9	4.8	4.8	91	91	3	2.6
24	NIP25-#-#-#/CML442/CML444	113	8	7	5.0	65	64	2	2.0	3.0	4.9	5.0	94	94	0	2.3
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	7.0	64	63	1	2.5	3.1	5.7	5.8	96	96	3	2.3
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	4.1	64	62	31	3.0	3.0	4.6	4.6	92	93	6	2.3
25	ECA-VL29	95	16	6	4.6	66	64	13	2.0	3.0	5.4	5.3	94	94	8	1.8
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	6.1	64	63	14	2.0	2.8	5.2	5.1	94	93	2	2.3
					5.4	64	63	12	2.3	3.0	5.2	5.1	94	94	4	2.2
27	WH504	137	2	1	7.1	65	66	0	2.0	2.2	7.0	7.1	97	97	2	1.3
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	6.7	66	66	12	3.0	3.1	5.2	5.2	98	98	0	1.5
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	6.8	63	65	9	3.0	2.8	5.1	5.1	98	97	3	1.8
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	5.7	65	65	11	2.5	2.8	5.0	5.0	97	97	5	2.0
					6.6	65	65	8	2.6	2.7	5.6	5.6	97	97	2	1.6
Mean		100	14	7	5.37	62.4	62.3	13.1	2.3	2.9	5.34	5.33	91.5	91.7	5.5	2.1
LSD (0.05)		12	5	3	2.60	3.4	3.2	12.8	0.7	0.3	1.31	1.26	2.6	2.5	10.0	1.0
Min		82	2	1	3.12	59.0	59.5	0.0	1.8	2.2	3.64	3.64	87.0	87.0	0.0	1.0
Max		137	24	12	7.05	66.0	65.5	31.2	3.0	3.2	9.41	9.13	98.0	97.5	19.0	3.5
NumSignificantSites		4	4	4	0	1	1	1	1	1	1	1	1	1	1	1

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Dhera, Ethiopia OPT			Thika, Kenya OPT							Chiredzi, Zimbabwe MDS				
		RelGY	Across		GY	GY	Anth	Days to	Plant	Ear	Ear	Grain	GY	Anth	ASI	Lodging
			Rank	StdDev	FW	FW	Date	Silk	Height	Height	Position	Text	GW	Date	d	Stem
					%	Avg	t/ha	t/ha	d	d	cm	cm	0-1	1-5	d	d
8	ECAVL17-#/CML440/CML445	113	8	5	3.6	6.0	79	82	196	94	0.5	1.5	0.9	117	4.0	9.2
7	ECAVL16-STR-#/CML440/CML445	110	10	8	3.8	6.2	77	79	203	88	0.4	1.0	2.0	117	1.5	0.3
6	ECAVL16-#/CML440/CML445	106	11	3	3.7	5.5	79	80	189	93	0.5	1.0	0.9	116	7.6	2.7
28	BH140	120	11	12	2.0	4.6	82	83	226	125	0.5	2.0	0.9	117	3.5	7.2
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	3.8	6.3	79	80	215	100	0.4	2.0	0.5	117	4.8	5.0
9	ECAVL18-#/CML440/CML445	102	14	9	3.4	4.4	77	78	194	89	0.4	1.5	0.9	116	2.8	3.1
10	NIP25-#/CML440/CML445	102	15	9	3.4	7.0	77	78	195	90	0.5	1.0	1.0	117	1.4	4.3
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	3.6	5.1	80	82	188	92	0.5	1.0	0.6	118	14.0	3.5
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	3.9	6.5	80	82	211	84	0.4	1.5	0.9	115	13.8	5.3
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	3.0	6.4	77	79	204	93	0.4	1.0	0.8	118	7.4	0.7
					3.4	5.8	79	80	202	95	0.5	1.4	0.9	117	6.1	4.1
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	3.3	6.0	83	85	193	100	0.5	2.0	0.7	117	3.9	1.8
26	H513	104	13	7	2.1	6.9	79	81	225	111	0.5	2.0	0.7	118	5.3	5.7
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	3.5	6.0	82	83	210	99	0.5	1.5	1.0	117	4.7	3.0
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	3.8	6.3	80	82	214	97	0.5	2.0	0.9	116	9.7	5.8
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	3.5	5.3	81	83	186	112	0.6	1.0	0.5	118	14.1	3.7
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	2.3	6.7	81	83	209	103	0.5	2.0	0.8	119	14.1	4.7
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	3.1	5.9	80	82	193	93	0.5	2.5	0.6	118	13.7	1.1
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	2.8	5.9	81	82	191	89	0.4	1.5	1.3	118	5.3	7.4
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	3.2	6.4	80	81	181	101	0.5	1.5	0.4	118	8.0	8.7
					3.1	6.2	81	82	200	100	0.5	1.8	0.8	118	8.7	4.7
24	NIP25-#-#-#/CML442/CML444	113	8	7	3.0	6.0	83	85	196	93	0.5	2.0	0.7	119	14.0	2.6
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	3.8	6.2	83	85	213	98	0.5	2.0	0.7	120	13.8	2.2
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	3.0	6.9	82	84	200	102	0.5	2.0	0.4	118	13.8	2.7
25	ECA-VL29	95	16	6	2.1	6.9	80	82	225	115	0.5	2.0	0.4	120	13.8	4.0
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	3.3	6.4	82	84	225	101	0.4	1.5	0.8	122	8.3	2.1
					3.1	6.5	82	84	212	102	0.5	1.9	0.6	120	12.7	2.7
27	WH504	137	2	1	2.7	7.5	83	84	240	117	0.5	2.0	0.7	125	14.0	4.8
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	3.2	5.2	83	84	200	100	0.6	3.0	0.4	122	14.0	1.5
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	3.1	5.8	84	86	218	110	0.5	3.0	0.9	121	13.8	0.0
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	4.8	6.3	82	84	216	108	0.5	2.5	0.6	121	14.0	3.6
					3.4	6.2	83	84	219	109	0.5	2.6	0.6	122	13.9	2.5
Mean		100	14	7	3.24	6.09	80.6	82.2	205.5	99.9	0.49	1.8	0.78	118.5	9.3	3.8
LSD (0.05)		12	5	3	1.37	2.17	3.4	3.2	25.4	13.8	0.07	1.0	0.68	3.0	7.5	4.2
Min		82	2	1	2.04	4.37	76.5	78.3	180.8	83.9	0.4	1.0	0.38	115.2	1.4	0.0
Max		137	24	12	4.77	7.54	83.5	86.2	240.5	124.9	0.6	3.0	2.03	125.1	14.1	9.2
NumSignificantSites		4	4	4	0	0	1	1	1	1	1	1	0	1	1	1

47

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

RDS= Random Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Across			Kutus, Kenya RDS		Weruweru, Tanzania RDS						Kiboko, Kenya RDS			
		RelGY	Rank	StdDev	GY FW	Num Plants	GY FW	Anth Date	Plant Height	Ear Height	Ear Position	Grain Text	Plant Aspect	GY FW	Anth Date	Days to Silk
		%	Avg		t/ha	#	t/ha	d	cm	cm	0-1	1-5	1-5	t/ha	d	d
8	ECAVL17-#/CML440/CML445	113	8	5	2.4	37	3.1	60	235	109	0.5	2.1	1.6	1.9	68	72
7	ECAVL16-STR-#/CML440/CML445	110	10	8	1.8	36	2.0	63	226	89	0.4	1.8	2.5	2.1	66	70
6	ECAVL16-#/CML440/CML445	106	11	3	1.9	40	2.7	58	227	114	0.5	1.7	2.3	1.0	65	70
28	BH140	120	11	12	3.0	41	3.8	63	255	134	0.5	2.6	2.4	2.6	70	72
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	1.2	30	2.7	58	220	102	0.5	2.5	2.0	1.7	68	71
9	ECAVL18-#/CML440/CML445	102	14	9	1.4	29	2.9	59	226	84	0.4	1.9	2.3	1.7	68	71
10	NIP25-#/CML440/CML445	102	15	9	2.0	38	2.2	62	222	118	0.5	1.8	2.6	1.3	66	68
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	1.6	32	2.1	59	247	113	0.5	2.0	2.6	1.5	68	72
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	1.8	31	2.6	57	239	117	0.5	1.8	2.4	1.3	67	72
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	1.3	30	3.9	58	249	114	0.5	2.3	2.3	1.0	67	72
					1.8	34	2.8	60	235	109	0.5	2.0	2.3	1.6	67	71
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	2.0	36	2.4	58	232	102	0.4	2.4	1.9	0.9	71	76
26	H513	104	13	7	2.6	38	3.2	58	261	125	0.5	2.5	2.1	1.1	71	76
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	1.7	32	3.2	59	222	105	0.5	2.0	2.1	1.8	66	71
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	1.5	34	2.5	59	227	100	0.4	2.2	2.3	1.6	69	72
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	1.0	25	2.7	60	249	126	0.5	2.3	2.1	1.5	71	75
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	1.8	32	2.0	58	227	100	0.4	2.8	2.1	2.3	71	76
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	2.2	37	2.2	62	234	84	0.4	2.1	3.0	1.8	67	71
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	1.8	33	2.0	59	228	112	0.5	2.0	2.3	0.9	71	76
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	2.0	36	3.0	56	227	105	0.5	2.6	2.3	1.2	70	72
					1.8	34	2.6	59	234	107	0.5	2.3	2.3	1.5	70	74
24	NIP25-#-#-#/CML442/CML444	113	8	7	2.3	32	2.9	60	232	136	0.6	2.3	2.2	1.0	72	79
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	1.5	30	2.4	60	242	126	0.5	2.0	2.4	2.3	70	71
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	1.6	36	2.1	62	257	93	0.4	2.4	2.5	1.3	71	73
25	ECA-VL29	95	16	6	1.9	33	2.9	62	242	139	0.6	2.5	2.4	1.5	72	77
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	1.6	31	2.7	61	231	119	0.5	2.1	2.1	2.7	70	74
					1.8	32	2.6	61	241	123	0.5	2.3	2.3	1.8	71	75
27	WH504	137	2	1	1.3	31	2.7	62	278	177	0.6	2.6	2.6	2.1	71	76
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	1.1	29	3.3	60	248	130	0.5	3.0	2.0	1.9	72	77
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	1.8	30	2.0	65	223	125	0.6	2.8	2.5	2.2	72	77
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	1.4	25	2.8	61	249	126	0.5	2.7	2.4	1.2	74	80
					1.4	29	2.7	62	249	140	0.6	2.8	2.4	1.8	72	78
Mean		100	14	7	1.77	33.1	2.68	60.0	237.6	115.2	0.48	2.3	2.3	1.62	69.3	73.5
LSD (0.05)		12	5	3	1.12	6.6	0.92	2.8	23.7	24.0	0.09	0.5	0.4	1.45	2.5	5.2
Min		82	2	1	1.02	24.8	1.96	56.4	220.3	83.5	0.4	1.7	1.6	0.89	65.2	67.5
Max		137	24	12	2.97	41.1	3.87	65.3	278.1	177.0	0.6	3.0	3.0	2.71	74.2	80.2
NumSignificantSites		4	4	4	0	1	0	1	1	1	1	1	1	0	1	1

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Kakamega, Kenya OPT														Valeska, Tanzania OPT	
		RelGY	Across		GY	Anth Date	Ear Height	Lodging		Husk Cover	Ear Rot	GLS	P.sorg	E.turc	Ear Aspect	Plant Aspect	GY
			Rank	StdDev	FW			%	%								FW
%	Avg		t/ha	d	cm	%	%	%	1-5	1-5	1-5	1-5	1-5	1-5	t/ha		
8	ECAVL17-#/CML440/CML445	113	8	5	5.2	72	68	8	10	24	2.6	1.5	2.3	3.6	2.1	3.6	
7	ECAVL16-STR-#/CML440/CML445	110	10	8	6.6	71	90	9	4	20	2.4	1.8	2.3	2.7	2.2	3.9	
6	ECAVL16-#/CML440/CML445	106	11	3	5.3	69	68	6	3	17	2.5	1.7	2.8	3.3	2.8	2.3	
28	BH140	120	11	12	5.4	75	123	2	3	16	4.0	1.5	2.5	3.8	2.6	2.9	
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	5.1	72	98	5	10	25	3.4	1.4	2.5	3.9	2.6	4.3	
9	ECAVL18-#/CML440/CML445	102	14	9	5.3	70	80	7	1	26	2.3	1.6	2.5	3.6	2.6	3.0	
10	NIP25-#/CML440/CML445	102	15	9	5.4	71	90	4	12	17	2.3	1.5	2.5	2.8	2.8	2.7	
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	3.7	70	83	5	20	40	3.1	2.3	3.0	3.9	2.9	4.1	
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	3.3	70	83	11	12	45	4.2	2.1	3.0	3.8	3.1	2.8	
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	3.4	73	83	5	14	44	3.4	2.0	3.0	4.1	2.9	2.7	
					4.9	71	86	6	9	27	3.0	1.7	2.6	3.6	2.7	3.2	
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	5.0	73	88	10	1	36	3.3	1.6	2.5	3.4	2.9	3.0	
26	H513	104	13	7	4.8	73	130	11	0	28	3.6	2.1	3.0	2.9	2.7	3.7	
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	4.1	72	78	2	7	43	3.4	1.7	2.8	3.9	2.6	3.6	
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	3.8	74	103	16	10	40	2.8	2.0	2.5	3.6	2.8	3.1	
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	3.5	74	100	9	0	42	3.1	2.0	2.5	3.8	2.6	3.8	
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	3.9	73	95	5	7	37	3.2	1.5	2.3	3.7	2.4	2.3	
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	3.4	71	93	5	27	47	3.4	2.0	3.0	3.7	2.7	3.1	
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	4.3	72	90	6	0	34	3.3	2.1	2.8	3.6	2.9	4.4	
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	4.8	72	100	4	11	23	2.9	2.5	2.5	3.4	2.9	3.4	
					4.2	72	97	7	7	36	3.2	1.9	2.6	3.5	2.7	3.4	
24	NIP25-#-#-#/CML442/CML444	113	8	7	5.6	75	105	4	0	33	2.6	1.5	2.5	3.1	2.4	2.8	
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	6.3	73	65	7	7	23	2.5	1.8	2.8	2.8	2.3	2.0	
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	4.4	72	83	4	1	30	2.7	2.1	2.5	3.1	2.6	3.1	
25	ECA-VL29	95	16	6	3.8	74	98	7	8	47	2.4	1.5	2.5	3.6	2.4	3.2	
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	5.0	76	108	3	0	23	2.3	1.8	2.8	3.1	2.6	2.1	
					5.0	74	92	5	3	31	2.5	1.7	2.6	3.1	2.5	2.6	
27	WH504	137	2	1	8.6	77	85	5	1	9	1.9	1.4	2.5	2.1	1.8	2.7	
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	5.8	78	83	7	0	32	1.5	1.6	2.5	3.1	2.1	2.7	
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	5.5	80	108	6	0	20	1.6	1.5	2.3	3.4	2.1	3.8	
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	4.7	77	120	8	1	37	1.8	1.6	2.3	3.2	2.4	1.8	
					6.1	78	99	7	0	24	1.7	1.5	2.4	2.9	2.1	2.7	
Mean		100	14	7	4.86	72.9	92.5	6.5	5.6	30.6	2.8	1.8	2.6	3.4	2.6	3.11	
LSD (0.05)		12	5	3	1.52	3.6	32.8	6.2	15.2	14.9	0.9	0.3	0.4	0.9	0.6	1.50	
Min		82	2	1	3.33	69.0	65.0	1.9	0.0	9.1	1.5	1.4	2.3	2.1	1.8	1.84	
Max		137	24	12	8.55	79.5	130.0	16.5	27.3	47.3	4.2	2.5	3.0	4.1	3.1	4.45	
NumSignificantSites		4	4	4	1	1	1	1	1	1	1	1	1	1	1	0	

49

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

MDS= Managed Drought Stress; Low N= Managed Low N itrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Across			Kiboko, Kenya Low N						Mlingano, Tanzania OPT		Serere, Uganda OPT			Madira, Tanzania OPT	
		RelGY	Rank	StdDev	Grain Yield		Anth Date	Plant Height	Grain Text	Grain Moist	GY	Grain Text	GY	Anth Date	Days to Silk	GY	Ears/Plant
		%	Avg		t/ha	t/ha	d	cm	1-5	%	t/ha	1-5	t/ha	d	d	t/ha	#
8	ECAVL17-#/CML440/CML445	113	8	5	4.2	4.0	54	155	1.9	16	5.7	2.2	7.7	58	59	2.8	1.0
7	ECAVL16-STR-#/CML440/CML445	110	10	8	3.0	3.4	57	135	1.9	15	4.2	2.4	8.2	57	57	3.0	1.0
6	ECAVL16-#/CML440/CML445	106	11	3	4.7	4.3	53	154	1.9	15	4.4	1.7	7.1	57	57	3.6	1.0
28	BH140	120	11	12	4.9	4.6	57	154	2.8	18	6.0	3.3	5.2	63	62	3.3	1.0
5	ECAVL18-#/P100C6-200-1-1-##-B*4/CML78-B	103	12	3	4.3	3.7	54	160	1.9	17	4.9	2.6	6.5	57	57	3.5	1.0
9	ECAVL18-#/CML440/CML445	102	14	9	3.3	3.7	55	141	1.9	16	5.5	2.3	7.2	57	57	3.0	1.0
10	NIP25-#/CML440/CML445	102	15	9	3.3	3.2	54	129	1.8	15	6.3	1.3	7.4	56	56	2.8	1.0
13	ECA-VL32//P100C6-200-1-1-##-B*4/CML78	88	19	7	3.4	4.2	55	142	1.9	14	5.5	1.9	5.7	58	57	3.1	1.0
1	ECA-VL21//P100C6-200-1-1-##-B*4/CML78	87	21	7	3.2	3.6	56	130	1.9	15	4.5	2.2	7.0	57	57	2.6	1.0
12	ECA-VL27//P100C6-200-1-1-##-B*4/CML78	82	22	6	3.2	3.4	56	133	1.9	15	5.0	1.8	7.3	57	56	2.7	1.0
					3.8	3.8	55	143	2.0	16	5.2	2.2	6.9	58	58	3.1	1.0
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	4.5	4.7	55	150	2.5	17	4.8	2.6	7.5	59	59	3.5	1.0
26	H513	104	13	7	3.1	3.4	57	167	2.0	20	6.0	2.2	6.6	59	59	2.9	1.0
4	ECAVL2-#/P100C6-200-1-1-##-B*4/CML78-B	96	15	6	4.5	4.1	55	154	1.9	16	4.8	2.3	5.9	57	58	2.8	1.0
14	ECA-VL37//P100C6-200-1-1-##-B*4/CML78	100	15	10	4.7	5.3	54	173	2.0	17	4.9	2.3	6.5	57	57	2.5	1.1
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B/CML78	93	18	10	5.1	4.8	55	167	1.9	19	4.1	2.4	8.0	59	59	2.3	1.0
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	4.3	4.1	56	155	1.9	18	3.7	2.8	8.4	60	60	2.9	1.0
11	ECA-VL24//P100C6-200-1-1-##-B*4/CML78	86	22	5	4.6	3.8	55	142	1.9	17	5.4	2.6	6.4	58	58	3.0	1.0
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	3.9	3.6	56	128	1.8	16	4.9	2.4	6.7	58	58	2.9	1.0
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	3.9	3.3	56	131	1.8	16	5.4	2.2	8.1	59	59	3.5	1.1
					4.3	4.1	55	152	2.0	17	4.9	2.4	7.1	59	58	2.9	1.0
24	NIP25-##-#/CML442/CML444	113	8	7	4.5	5.2	58	169	1.9	20	5.7	2.3	8.9	61	61	3.2	1.0
23	ECAVL18-##-#/CML442/CML444	103	12	12	2.5	2.5	60	141	1.9	18	3.3	2.2	9.0	60	60	3.4	1.0
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	4.5	4.3	58	154	2.4	18	3.7	3.0	4.1	60	60	3.3	1.0
25	ECA-VL29	95	16	6	4.1	4.2	57	157	1.9	18	4.0	2.8	5.6	60	60	3.3	1.0
21	ECAVL16-##-#/CML442/CML444	96	17	5	3.2	3.3	60	154	1.9	19	5.2	2.2	7.9	60	60	3.2	1.1
					3.7	3.9	58	155	2.0	19	4.4	2.5	7.1	60	60	3.3	1.0
27	WH504	137	2	1	5.0	4.7	59	184	2.9	23	4.7	3.5	8.6	61	61	3.3	1.1
22	ECAVL17-##-#/CML442/CML444	104	11	8	3.6	3.5	61	165	2.4	21	4.3	3.1	7.5	60	61	3.1	1.1
19	ECAVL1-##-#/CML442/CML444	99	14	7	3.8	3.8	61	154	2.4	20	4.9	3.2	10.0	60	60	2.3	1.1
20	ECAVL2-##-#/CML442/CML444	94	16	10	3.0	2.8	63	158	2.9	20	4.2	2.4	11.0	61	61	3.5	1.1
					3.8	3.7	61	165	2.7	21	4.5	3.0	9.3	61	61	3.0	1.1
Mean		100	14	7	3.94	3.91	56.6	151.2	2.1	17.4	4.86	2.4	7.36	58.8	58.9	3.04	1.04
LSD (0.05)		12	5	3	1.64	1.40	3.6	28.9	0.5	2.4	2.38	0.6	3.14	1.7	1.9	1.02	0.07
Min		82	2	1	2.49	2.49	52.7	127.9	1.8	14.3	3.30	1.3	4.15	56.3	56.4	2.29	1.00
Max		137	24	12	5.09	5.33	62.5	184.0	2.9	22.6	6.35	3.5	11.00	62.5	62.3	3.62	1.15
NumSignificantSites		4	4	4	0	1	1	1	1	1	0	1	0	1	1	0	1

50

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

RDS= random Drought Stress; Low N= Managed Low N nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Kibos, Kenya OPT											Njoro, Tanzania RDS			
		RelGY	Across		GY	Anth Date	Days to Silk	Lodging	GLS	P.sorg	Num Plants	Plant Aspect	GY	Ears/Plant	Grain Moist	Num Plants
			Avg	Rank	FW			Root					FW			
		%	Avg	StdDev	t/ha	d	d	%	1-5	1-5	#	1-5	t/ha	#	%	#
8	ECAVL17-#/CML440/CML445	113	8	5	6.1	59	61	14	1.5	1.6	38	2.8	0.2	0.1	13.0	40
7	ECAVL16-STR-#/CML440/CML445	110	10	8	5.2	59	60	12	1.5	1.6	38	2.5	0.3	0.1	12.4	44
6	ECAVL16-#/CML440/CML445	106	11	3	4.8	59	61	19	1.7	1.4	34	3.0	0.2	0.1	15.9	37
28	BH140	120	11	12	6.2	62	63	15	1.4	2.0	36	2.3	0.4	0.1	9.5	33
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	5.7	59	62	31	2.1	1.8	37	3.0	1.0	0.4	14.2	41
9	ECAVL18-#/CML440/CML445	102	14	9	5.4	60	62	15	1.5	1.6	37	2.8	0.2	0.3	12.0	40
10	NIP25-#/CML440/CML445	102	15	9	5.1	59	61	18	2.0	1.6	36	2.5	0.5	0.2	14.2	42
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	5.2	61	62	27	2.0	1.6	36	3.5	0.5	0.2	13.2	46
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	5.9	60	61	36	2.2	1.4	37	3.0	0.5	0.2	13.0	40
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	5.7	59	61	43	1.7	1.5	36	3.3	1.1	0.3	6.2	48
					5.5	60	61	23	1.8	1.6	36	2.9	0.5	0.2	12.4	41
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	6.3	61	61	28	1.7	1.6	38	2.3	0.4	0.2	12.4	43
26	H513	104	13	7	6.5	62	63	63	2.4	1.9	37	2.3	0.4	0.2	14.2	43
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	5.9	59	62	39	2.1	1.7	37	2.8	0.3	0.1	13.0	41
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	6.4	60	62	40	2.1	1.6	37	2.8	0.6	0.3	13.6	41
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	6.6	62	62	23	2.4	1.8	31	2.5	0.2	0.1	12.6	38
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	6.6	62	63	18	2.5	2.0	37	2.3	0.2	0.1	12.7	43
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	6.3	61	62	11	2.1	1.8	37	2.8	0.1	0.1	12.8	41
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	6.7	62	64	11	2.3	1.7	35	2.8	0.2	0.1	13.1	41
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	5.7	62	62	19	1.8	1.7	38	2.5	0.3	0.1	12.8	39
					6.3	61	62	28	2.2	1.7	36	2.5	0.3	0.1	13.0	41
24	NIP25-#-#-#/CML442/CML444	113	8	7	6.5	62	63	25	1.6	1.6	38	3.0	0.5	0.1	13.4	37
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	6.7	63	65	25	1.7	2.0	36	2.8	0.2	0.0	8.5	35
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	6.2	62	63	6	2.1	1.9	36	2.5	0.2	0.1	12.2	41
25	ECA-VL29	95	16	6	5.7	63	65	34	1.8	1.4	38	2.8	0.2	0.0	13.1	43
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	6.7	61	63	25	1.7	1.3	38	2.3	0.5	0.1	8.6	40
					6.4	62	64	23	1.8	1.7	37	2.7	0.3	0.1	11.2	39
27	WH504	137	2	1	6.8	64	65	29	1.4	1.8	37	2.3	0.1	0.1	12.6	40
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	6.1	64	65	13	1.5	1.7	36	2.5	0.2	0.1	12.1	37
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	5.6	64	65	28	1.5	1.2	38	2.0	0.4	0.2	13.4	42
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	6.8	63	65	46	1.6	1.5	37	2.3	0.3	0.1	12.7	41
					6.3	64	65	29	1.5	1.6	37	2.3	0.3	0.1	12.7	40
Mean		100	14	7	6.05	61.2	62.6	25.5	1.9	1.7	36.4	2.6	0.37	0.14	12.4	40.6
LSD (0.05)		12	5	3	1.26	2.5	2.0	14.3	0.5	0.3	3.0	0.6	0.67	0.18	5.9	7.3
Min		82	2	1	4.83	58.8	59.9	6.3	1.4	1.2	30.5	2.0	0.13	0.04	6.2	33.1
Max		137	24	12	6.84	64.1	65.5	63.0	2.5	2.0	38.0	3.5	1.12	0.39	15.9	47.9
NumSignificantSites		4	4	4	0	1	1	1	1	1	1	1	0	0	0	0

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

RDS= random Drought Stress; Low N= Managed Low N nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Handeni, Tanzania OPT							Embu, Kenya OPT							
		RelGY	Across		GY FW	Ear Height	Grain Text	GY FW	Anth Date	Days to Silk	Lodging Root	Ears/ Plant	GLS	E.turc	Ear Aspect	Plant Aspect
			Avg	StdDev												
%	Avg	StdDev	t/ha	cm	1-5	t/ha	d	d	%	#	1-5	1-5	1-5	1-5		
8	ECAVL17-#/CML440/CML445	113	8	5	4.0	82	1.9	5.9	69	67	0	0.9	1.5	1.8	3.2	3.5
7	ECAVL16-STR-#/CML440/CML445	110	10	8	5.9	90	1.7	5.8	69	67	0	0.9	1.3	1.7	2.9	3.2
6	ECAVL16-#/CML440/CML445	106	11	3	4.9	91	1.5	6.3	65	65	1	0.9	2.4	1.8	2.9	3.3
28	BH140	120	11	12	6.8	122	3.4	5.1	64	62	22	1.0	1.0	1.6	3.5	3.1
5	ECAVL18-#/P100C6-200-1-1-#-B*4/CML78-B	103	12	3	4.3	91	2.5	6.4	67	65	2	1.0	2.0	1.9	3.1	3.5
9	ECAVL18-#/CML440/CML445	102	14	9	4.4	90	1.6	5.5	67	67	0	0.9	1.4	2.0	3.1	3.3
10	NIP25-#/CML440/CML445	102	15	9	5.4	82	1.5	7.8	66	65	3	1.0	2.2	2.0	2.1	2.8
13	ECA-VL32//P100C6-200-1-1-#-B*4/CML78	88	19	7	3.7	78	2.3	5.2	68	67	1	1.0	1.8	2.0	3.4	3.3
1	ECA-VL21//P100C6-200-1-1-#-B*4/CML78	87	21	7	5.4	86	2.5	7.2	67	67	2	0.9	2.5	1.8	2.9	3.3
12	ECA-VL27//P100C6-200-1-1-#-B*4/CML78	82	22	6	5.6	78	1.5	6.7	67	65	1	1.0	3.2	1.8	2.6	3.0
					5.1	89	2.0	6.2	67	66	3	0.9	1.9	1.8	3.0	3.2
16	ECA-VL25//P300C5S1B-2-3-2##1-2-B*6/CML78	110	10	5	5.8	83	2.6	7.3	66	67	0	1.1	2.4	1.5	2.3	3.8
26	H513	104	13	7	6.1	102	2.5	6.9	70	67	1	0.8	1.8	1.8	3.1	4.1
4	ECAVL2-#/P100C6-200-1-1-#-B*4/CML78-B	96	15	6	6.8	83	1.4	5.7	69	69	1	0.9	1.9	1.7	2.8	3.4
14	ECA-VL37//P100C6-200-1-1-#-B*4/CML78	100	15	10	5.5	83	2.3	6.3	68	67	1	0.9	2.6	1.7	2.3	3.4
2	ECAVL2-#/P300C5S1B-2-3-2##1-2-B-B-B-B-B/CML78	93	18	10	5.4	84	2.3	7.0	69	69	0	1.1	1.8	1.8	2.8	3.7
17	ECA-VL29//P300C5S1B-2-3-2##1-2-B*6/CML78	90	19	6	4.1	81	2.2	5.8	68	68	5	1.0	2.2	2.0	3.1	3.2
11	ECA-VL24//P100C6-200-1-1-#-B*4/CML78	86	22	5	6.0	76	2.5	6.2	68	66	4	0.9	2.8	1.9	2.9	3.1
15	ECA-VL22//P300C5S1B-2-3-2##1-2-B*6/CML78	85	22	4	5.4	101	1.9	6.3	69	68	3	1.0	2.6	1.8	2.3	3.2
18	ECA-VL38//P300C5S1B-2-3-2##1-2-B*6/CML78	83	24	5	5.4	75	2.8	5.5	69	68	5	0.8	2.2	1.9	2.7	2.8
					5.6	85	2.3	6.3	68	68	2	0.9	2.2	1.8	2.7	3.4
24	NIP25-#-#-#/CML442/CML444	113	8	7	5.7	94	2.6	7.3	73	72	2	1.0	1.3	1.4	2.8	3.7
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	3.3	91	2.3	8.3	71	71	1	1.0	1.6	1.6	2.1	4.0
3	ECAVL17-#/P300C5S1B-2-3-2##1-2-B*6/CML78	98	13	7	5.1	85	3.1	6.8	69	68	2	0.9	3.0	2.0	2.6	3.2
25	ECA-VL29	95	16	6	4.4	86	2.8	6.9	73	71	2	1.1	1.4	1.4	2.5	3.5
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	7.0	114	2.2	7.1	72	70	3	0.9	1.5	1.5	2.4	3.9
					5.1	94	2.6	7.3	72	70	2	1.0	1.8	1.6	2.5	3.7
27	WH504	137	2	1	7.3	119	2.8	9.1	73	73	4	1.0	1.0	1.4	2.0	4.0
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	6.0	97	3.3	7.2	76	74	0	0.8	1.2	1.4	2.8	3.9
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	3.7	93	3.0	6.9	72	72	0	1.0	1.3	1.4	3.1	4.0
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	5.4	97	2.6	7.3	73	72	0	1.1	1.5	1.7	2.4	4.0
					5.6	101	2.9	7.6	74	73	1	1.0	1.2	1.5	2.6	4.0
Mean		100	14	7	5.33	90.5	2.3	6.62	69.2	68.1	2.3	0.95	1.9	1.7	2.7	3.5
LSD (0.05)		12	5	3	2.44	18.3	0.5	2.88	2.3	2.6	5.8	0.11	1.0	0.3	0.5	0.6
Min		82	2	1	3.33	75.0	1.4	5.11	64.1	62.1	0.0	0.76	1.0	1.4	2.0	2.8
Max		137	24	12	7.34	122.2	3.4	9.07	75.8	74.4	21.7	1.07	3.2	2.0	3.5	4.1
NumSignificantSites		4	4	4	0	1	1	0	1	1	1	1	1	1	1	1

52

ECA-IDTC11

Grain yield and other agronomic traits of 24 intermediate maturing double top-cross hybrids at 21 sites in Eastern and Southern Africa, 2011.

RDS= random Drought Stress; Low N= Managed Low N Nitrogen Stress ; OPT= Optimum (well-fertilized/rainfed) management

TABLE 4C

Entry	Pedigree	Kiboko, Kenya MDS										
		RelGY	Across		Grain Yield		Anth Date	Ear Height	Ears/Plant	Husk Cover	Ear Rot	Leaf Senes
			Rank	SldDev	GW	FW						
	%	Avg		t/ha	t/ha	d	cm	#	%	%	1-10	
8	ECAVL17-#/CML440/CML445	113	8	5	2.0	2.0	67	106	0.4	5	6	5.0
7	ECAVL16-STR-#/CML440/CML445	110	10	8	1.8	1.6	67	107	0.5	1	5	5.5
6	ECAVL16-#/CML440/CML445	106	11	3	1.5	1.4	65	110	0.5	2	0	6.0
28	BH140	120	11	12	1.1	1.1	68	114	0.3	1	25	5.0
5	ECAVL18-#/P100C6-200-1-1-##-B*4/CML78-B	103	12	3	1.4	1.4	67	124	0.5	2	16	6.0
9	ECAVL18-#/CML440/CML445	102	14	9	1.6	1.5	67	115	0.5	0	13	6.0
10	NIP25-#/CML440/CML445	102	15	9	1.9	1.8	65	105	0.6	7	13	6.0
13	ECA-VL32//P100C6-200-1-1-##-B*4/CML78	88	19	7	1.4	1.4	67	119	0.5	6	6	6.3
1	ECA-VL21//P100C6-200-1-1-##-B*4/CML78	87	21	7	1.8	1.8	66	113	0.5	4	15	6.2
12	ECA-VL27//P100C6-200-1-1-##-B*4/CML78	82	22	6	1.7	1.6	66	116	0.5	10	3	6.5
					1.6	1.5	67	113	0.5	4	10	5.8
16	ECA-VL25//P300C5S1B-2-3-2#1-2-B*6/CML78	110	10	5	1.4	1.4	67	117	0.4	0	0	5.8
26	H513	104	13	7	2.5	2.3	68	132	0.7	6	18	5.0
4	ECAVL2-#/P100C6-200-1-1-##-B*4/CML78-B	96	15	6	1.6	1.6	68	117	0.5	6	4	6.0
14	ECA-VL37//P100C6-200-1-1-##-B*4/CML78	100	15	10	1.4	1.3	67	109	0.4	3	3	5.5
2	ECAVL2-#/P300C5S1B-2-3-2#-#1-2-B-B-B-B-B/CML78	93	18	10	0.8	0.9	69	117	0.3	7	14	6.0
17	ECA-VL29//P300C5S1B-2-3-2#1-2-B*6/CML78	90	19	6	2.0	1.8	69	117	0.5	0	3	5.2
11	ECA-VL24//P100C6-200-1-1-##-B*4/CML78	86	22	5	1.2	1.2	67	102	0.3	1	0	5.7
15	ECA-VL22//P300C5S1B-2-3-2#1-2-B*6/CML78	85	22	4	1.1	1.1	68	116	0.3	1	4	6.0
18	ECA-VL38//P300C5S1B-2-3-2#1-2-B*6/CML78	83	24	5	1.7	1.6	68	108	0.5	0	4	6.2
					1.5	1.5	68	115	0.4	3	5	5.7
24	NIP25-#-#-#/CML442/CML444	113	8	7	0.8	0.9	70	122	0.3	2	20	6.0
23	ECAVL18-#-#-#/CML442/CML444	103	12	12	1.1	1.1	69	111	0.3	0	4	5.0
3	ECAVL17-#/P300C5S1B-2-3-2#1-2-B*6/CML78	98	13	7	0.8	0.8	69	124	0.2	0	0	4.8
25	ECA-VL29	95	16	6	1.0	1.0	70	145	0.3	3	30	5.0
21	ECAVL16-#-#-#/CML442/CML444	96	17	5	1.3	1.3	69	118	0.3	0	12	4.8
					1.0	1.0	69	124	0.3	1	13	5.1
27	WH504	137	2	1	1.0	1.1	71	125	0.3	0	28	4.5
22	ECAVL17-#-#-#/CML442/CML444	104	11	8	1.2	1.2	72	116	0.4	0	5	4.0
19	ECAVL1-#-#-#/CML442/CML444	99	14	7	1.5	1.5	71	111	0.4	1	17	4.3
20	ECAVL2-#-#-#/CML442/CML444	94	16	10	1.2	1.2	71	132	0.4	0	6	4.2
					1.2	1.2	71	121	0.4	0	14	4.3
Mean		100	14	7	1.42	1.38	68.1	116.7	0.41	2.5	9.6	5.4
LSD (0.05)		12	5	3	1.01	0.88	1.1	16.8	0.19	5.0	17.1	1.2
Min		82	2	1	0.78	0.78	65.3	101.8	0.17	0.0	0.0	4.0
Max		137	24	12	2.51	2.28	71.6	145.2	0.7	10.3	30.0	6.5
NumSignificantSites		4	4	4	0	0	1	1	1	1	1	1



CIMMYT