ORIGINAL COPY

APPLICATION FOR RELEASE OF TWO MAIZE HYBRIDS

BY

Dr. Denis .T. Kyetere,	Breeder and Head
Dr. George Bigirwa,	Pathologist
Dr. Joseph Kikafunda- Twine,	Agronomist
Dr. Justus Imanywoha,	Breeder

Programme: Cereals Programme

Institute: Namulonge Agricultural and Animal Production Research Institute (NAARI)

Address: P.O. Box 7084,
KAMPALA
Tel: 041- 341554
Fax: C/O 042- 21070
E-mail: naari@naro.bushnet.net

Submitted August, 1998.

TABLE OF CONTENTS

Appendix 1 Tables

Appendix 2 Figures

Introduction

With the inception of NARO the focus of the Cereals Programme has been more to hybrid development and production as opposed to the earlier concentration on open-pollinated varieties (OPV). This effort has resulted in the development of two hybrids that are being presented today for release.

The first OPV, Kawanda Composite A (KWCA) was released in 1971. This is a very tall, late maturing (135-140 days) variety that is highly susceptible to maize streak virus (MSV), a major maize disease in Africa that limits maize production. The second OPV released is Longe 1. It matures in 110-115 days, yields between 2000-4000 kg per ha under farmer's good management and is moderately resistant to major pests and diseases in the country.

The two hybrids, formerly experimental hybrids NZ2 and NZ3, being presented for release are of intermediate maturity (125 days) are of average height (2.2 m) except where soil is very fertile that they can seemingly look tall; yield between 5000-7000 kg per ha under farmer's good management. This yield is about an average of 3 tons over the present widely grown variety, Longe 1. These hybrids have potential of producing 10-11 tons per ha as shown in some experimental plots.

Trials conducted have shown that NZ2 is more resistant to lodging than NZ3 but more susceptible to gray leaf spot (GLS) than NZ3. GLS is a recent disease that has shown to be of a potentially economic threat. NZ2 is thus recommended to be the priority hybrid for production. In case of future possible GLS epidemic, NZ3 is the recommended hybrid. We hereby propose the following names for the two hybrids;

NZ2 to be Uganda Hybrid One = UH1
NZ3 to be Uganda Hybrid Two = UH2

Pedigree of NZ2 and NZ3

The origin of NZ2 and NZ3 is of inbred lines from the CIMMYT-Zimbabwe station that have undergone five generations of further selfing and selection for adaption in our environment. This was taken as a short term strategy to hybrid development while developing our own inbred lines in the long run.

Pedigree of NZ2

It is a single cross of:

CML 202 - ZSR 923 S4 BULK-5-1-b-b
CML 206 - [EV7992#EVPO44-SRBC3]#bF37-SR-2-3sr-2-4-3-b-b]

Pedigree of NZ3

It is a single cross of:

CML 202 - ZSR 923 S4 BULK-5-1-b-b
CML 216 - [MSR:131]-3-3-3-5-b-b

Inbred lines maintenance

The inbreds will be maintained by bulk sibbing with occasional selfing in order to maintain their identity.

Results and Discussion

The Candidate varieties due for release underwent a series of testing, for 4 consecutive seasons 1996A, B, 1997A & B through preliminary and intermediate yield trials at Namulonge (table 1) and advanced yield trials (tables 2-20). In addition they were tested on-farm in several districts.

In all instances whether during the intermediate or advanced testing, the following procedures were followed: Experimental design was randomized complete block; 4 replications, plots measured 5m long with 4 rows, spaced at 75cm between rows and 30cm within plants. Fertilizers were applied at the rate of 60 kg/ha of N, 45 kg/ha $P_2 0_5$.

During the first season of 1996, the 2 candidate data varieties were tested along side 23 other hybrids at Namulonge, of which 4 came from Seed Co. of Zimbabwe and the rest from the CIMMYT Zimbabwe. The 2 hybrids NZ2 and NZ3 are intermediate in maturity, 69 days to achieve 50% silking for NZ2 and 68 for NZ3. They are all less than 1.5 m in height. Disease reaction to the common diseases Northern leaf blight (NLB) and gray leaf spot (GLS) is good and very good for maize streak virus (MSV). During the same season they all gave yield of above 7t/ha (7578 kg/ha for NZ3 ranking the highest yielder and 7299 kg/ha for NZ2 ranking third).

During the second season of 1996, the candidate varieties were tested along side 9 other varieties in 4 locations; Namulonge, Serere, Kamenyamiggo and Ikulwe. At Namulonge, significant differences ($P \leq 0.0010$) were observed on all parameters taken. NZ2 was the highest yielder, 7465 kg/ha followed by SC 93C3813, a Zimbabwe Seed Co hybrid. NZ3 was the third highest yielder giving 6088 kg/ha. At Ikulwe, NZ2 was the second yielder (7628 kg/ha) while NZ3 was third (7294 kg/ha). At Kamenyamiggo NZ3 gave the highest yield (8249 kg/ha) while NZ2 was fourth. Longe 1 the check yielded 4070 kg/ha

Overall ranking of varieties during the second season of 1996 showed that NZ2 was the best yielder followed by NZ3; Longe 1 the local check, had the least yield.

During the first season of 1997, 13 varieties including the 2 candidate hybrids were tested in 7 locations in the advanced yield trial. NZ 2 was the best yielder in 2 locations, Namulonge and lower Mbale (Table 14). The same hybrid was second in yield at Serere and Bulegeni (upper Mbale). At Ikulwe it was third while at Kamenyamiggo it was fourth. On the other hand NZ 3 was the highest yielder in 2 locations, at Ikulwe, and Serere, second highest at Kamenyamiggo. The 2 varieties performed poorly at Kapchorwa because of altitude. Kapchorwa has an altitude of about 2000 m above sea level which is not suitable for the 2 hybrids. The Kenya hybrids particularly H626 and H614 performed well in Kapchorwa for they are well adapted and that is why they are exclusively grown there.

Among the new materials tested in Kapchorwa,P130B17 and PAN 67 performed well which implies that they could be highland adapted. To verify this more testing in Kapchorwa is required.

Across location performance of the varieties tested in the first season of 1997 showed that NZ2 was the second best followed by NZ3 (Table 14).

Second season of 1997 had the testing of 15 varieties in 5 locations (Table 20). The candidate hybrids were tested against the hybrids SC Expt 1 and Expt 2 from Seed Co of Zimbabwe and PAN 6193 and PAN 67 from Pannar of South Africa and Kenyan hybrids H511, H512, and H622. NZ2 was second yielder at Ikulwe, third at Serere and fourth at Kamenyamiggo. NZ3 was second yielder at Namulonge and third at Masindi. In most Overall performance of the varieties across locations for the season 1997B placed NZ 2 as the fourth best yielder while NZ3 was fifth. The first and second positions were taken by SC Expt 1 and 2 respectively.

Results from combined across season (1996B, 97A, & 97B) and location (Namulonge, Serere, Ikulwe and Kamenyamiggo) analysis showed that NZ2 was the highest yielder followed by NZ3 (Fig. 2). From each location analysis (Fig 3) NZ 2 was the highest yielder followed by NZ3 with exception of Kamenyamiggo where NZ3 leads NZ2. A similar pattern/trend of NZ2 more or less taking lead is reflected in figures 4 and 5.

From the joint work conducted with farmers in Iganga, Masindi, Mbale and Mubende results still placed NZ 2 and NZ 3 among the high yielders (Tables 21-22).

Various reasons were given by farmers during field and open days as to why they liked the new hybrids. These ranged from good taste, high yields, cob filling, ability to bear cobs etc (Table 23).

Descriptive data of NZ2 and NZ3

Description/Characteristics	Variety	
	NZ 2	NZ 3
Days to flowering	68	65
Days to pollen shed	70	69
Plant height (cm)	237	233
Ear height (cm)	116	114
Tassel length (cm)	39.1	37.8
Ear leaf length (cm)	88.2	91.6
Ear length width (cm)	10.6	10.2
Number of leaves	13	13
Number of nodes	14	14
Node at which ear is placed	7	8
Cob length-dehusked	22.1	22.0
Cob diameter-dehusked	5.3	5.5
Cob weight (gms)	277.2	282.9
Grain weight/cob (gms)	222.5	219.4
Shelling % age	80.3	79.7
Grain texture	Flint	Flint
Stem colour	Light green and purple coloration around the nodes	Purple sheath most pronounced at the nodes
Silk colour	Purplish	Purplish

Longe 24

Agronomic package

Spacing

The maize varieties should be spaced at 75 cm between the rows and 30 cm within the row i.e., 1 plant per hill, if planting with machine. This spacing is also good for hand planting although it could be rather tedious. When planting with hands the spacing within the row can be increased to 60 cm and planting two seeds per hill.

Fertilizer.

Nitrogen and phosphorus are the most limiting nutrients for maize production in the country. The fertilizer amount to be applied will depend on the fertility of the soil, how long the land has been used without fertilizer application and the amount of yield expected. For a 7 ton/ha crop, it is necessary to apply 125 kg N/ha, 60 kg P_2O_5/ha. The nitrogen can be applied in the form of urea, Calcium Ammonium Nitrate (CAN), Sulphate of Ammonia (S of A) or in the compound fertilizer N-P-K. Phosphorus can be applied in the form of Diammonium Phosphate (DAP), Single Supper Phosphate (SSP) or Triple Super Phosphate (TSP). The amount of fertilizer to be applied will depend on the type of fertilizer used since the amount of nutrients vary with the product. The possible combinations and the amounts applied targeting a 7 ton/ha crop are as follows;

1. 223 kg of urea and 125 kg of DAP per ha.
2. 241 kg urea and 118 kg MAP per ha.
3. 272 kg urea and 133 kg TSP per ha.
4. 272 kg urea and 286 kg SSP per ha.

In cases where CAN is used instead of urea, the amount of CAN to be used is 1.7 times the amount of urea used. The common compound fertilizer, NPK (25-5-5), supplies mainly nitrogen. It has to be supplemented with more phosphorus. For example if one has to use NPK and SSP as the two sources of nutrients, one would apply 480 kg of NPK and 172 kg of SSP per ha. The above rates are for the commercial farmer who machine broadcasts or drills fertilizer and whose soil fertility has been built up.

For the emerging commercial farmers who can afford less amounts of fertilizer, he can apply fertilizer at the rate of 70 kg N and 35 kg P_2O_5 per ha by applying 3.3 gm (one bottle top cup) of DAP in the seed hole and covering lightly with soil at planting and applying 5.5 gm of urea (two bottle top cups) at 6 weeks after crop emergence about the maize hills and covering the fertilizer, will result in good yields. This is equivalent to 122 kg of urea and 73 kg DAP/ha if maize is spaced at 75 cm x 60 cm. At this rate , it is possible to achieve 5 tons/ha. For the resource-constrained farmer he can apply one cup of DAP for two hills of maize and 1 cup of urea per hill of maize and be able to get about 3 tons/ha.

All this will depend on the inherent soil fertility. The amount applied will increase if the soil fertility is depleted.

Planting date.

The hybrids proposed for release are full season varieties. It is highly recommended that they take advantage of the full season. they can be planted in the dry before the rainy season provided the seed is placed deep enough (about 5 cm) so that it is not seriously affected by the daily fluctuations in temperature. They have been found to withstand the early season moisture stress whereby they grow slowly but are able to take advantage of the main moisture period.

Seedbed quality.

It is not very necessary to have a good seedbed when hand planting. To attain uniform depth, however, it is necessary to have a good seedbed in the case of machine planting.

Weed Control

It is important that weeds are not allowed to seriously compete with the crop especially in the first 45 days of growth. Interviewed farmers have indicated that the new varieties are poorer competitors with weeds compared with the local varieties.

Table 1. Performance of intermediate/late maturing CIMMYT hybrids at Namulonge, 1996A

Entry/ Pedigree	50% silking	Stem lodging	Root lodging	Plant height	Ear height	GLS 1-5	NLB Score	Yield kg/ha	Yield ranking
NZ 2	69	2.3	0.7	237	137	1.8	1.3	7299	3
216/206	70	0.3	0.0	228	121	2.0	1.3	6848	8
NZ 3	68	3.0	1.0	236	129	2.0	1.8	7578	1
216/204/206	71	7.0	0.7	258	131	1.8	1.5	7152	6
216/202/206	70	1.7	0.0	239	118	1.8	1.5	7088	7
206/202/K64R	61	3.3	1.3	215	119	1.8	1.5	7288	5
216/K64R/SC	69	1.3	0.0	240	109	1.8	1.5	5203	20
206/202/SC	66	1.3	1.0	244	124	2.0	1.5	6634	10
202/204/206	73	1.3	1.7	235	122	1.8	2.0	6627	12
216/206/SC	67	4.3	0.0	219	113	3.0	2.2	5664	18
204/206/K64R	60	1.3	0.7	210	118	2.3	1.7	6629	11
204/206/202/1164R	65	1.0	1.0	239	142	1.8	1.7	7465	2
216/204/206/202	68	3.7	0.7	243	114	2.2	1.8	6738	9
204/206/216/K64R	70	1.7	0.7	225	136	2.0	1.5	5713	16
202/K64R/607	63	4.3	1.0	245	121	1.8	1.5	6109	15
216/K64R/INTA	65	1.7	0.0	2327	128	2.3	1.8	6374	14
216/K64R/607	65	2.7	1.0	239	118	2.0	2.0	5769	15
216/K64/INTSY	67	1.0	1.3	237	106	2.0	1.8	4979	21
216/K64R/607/C3	62	5.0	3.0	222	124	3.3	2.7	4967	22
MBRET-W	64	3.3	1.7	224	111	2.0	1.3	5512	19
322/78	68	1.7	1.0	226	125	1.8	1.2	6379	12
322/78/311	65	1.7	0.3	230	144	1.8	1.5	5658	18
ETS94P49	67	0.7	0.3	286	122	2.7	2.3	7299	3
P44C7F216	66	3.3	0.7	229	120	2.0	1.8	5710	17
SC 707	66	5.7	1.0	237	124	2.3	2.7	4785	23
MEAN	67	2.6	0.8	235	123.7	2.1	1.7	6273	
LSD (0.05)	3.0	NS	NS	20.1	12.5	0.8	0.6	1368	
CV (%)	2.7	69	75	5.2	6.1	21.9	22.5	13.3	

Table 2. Performance of entries in the advanced yield trial at Namulonge, 1996B

Entry	Plant height	Ear height	Days 50% silk	Plant aspect	Husk cover	NLB	GLS	Ears rotten	Grain texture	Yield	Ranking
	-------- cm ----------			---------- 1-5 ----------							
						Counts		1.5 score	Kg/ha		
LP 16	182.0	75.8	59.3	3.3	3.0	1.5	3.3	0.0	3.1	4194	12
P1=x1264JW	199.3	78.3	67.5	3.0	2.4	1.5	4.5	0.3	4.3	4578	9
PHB 3253	188.5	80.5	72.5	3.4	2.1	1.5	4.9	0.5	3.4	5106	7
PAN 6193	190.3	80.5	72.3	3.3	2.9	1.5	3.8	0.5	3.6	4309	11
PAN 6195	182.0	78.8	75.5	3.0	3.0	1.5	3.3	0.3	3.4	5777	4
SC 707	208.3	87.5	76.3	3.1	2.5	1.5	4.9	0.3	4.5	5347	6
SC 93C3813	191.0	78.5	69.3	3.1	3.5	1.5	1.9	0.5	4.5	6832	2
LONGE 1	176.8	71.0	67.0	3.4	2.0	1.6	3.1	1.3	3.3	4488	10
GLS COMPE	187.3	80.5	66.3	3.1	2.4	1.5	2.8	0.0	3.3	4853	8
NZ 2	178.0	74.0	78.8	2.9	2.0	1.6	2.0	0.3	1.8	7465	1
NZ 1	175.0	77.5	75.0	3.0	1.0	1.5	2.8	0.3	2.6	5286	5
NZ 3	188.8	84.5	78.8	3.0	1.0	1.5	2.4	0.5	1.6	6088	3
MEAN	187.3	78.9	71.5	3.1	2.3	1.5	3.3	0.4	3.3	5360	
LSD (0.05)	26.7	18.0	3.9	11.1	0.7	0.1	0.6	0.9	15.1	1666.7	
CV (%)	9.9	15.9	3.8	0.5	21.9	12.5	12.5	45.9	0.7	21.6	

Table 3. Performance of entries in the advanced yield trial at Ikulwe (Iganga), 1996B.

Entry	Plant height	Ear height	Husk cover	Plant aspect	GLS	NLB	Ear	Ears	Texture aspect	Yield rotten	Yield ranking
LP 16	203.5	101.5	2.9	3.4	2.4	1.6	2.8	1.5	3.5	3580	11
P1=x1264JW	236.0	100.8	2.6	3.1	2.8	1.5	2.8	0.8	3.5	5688	5
PHB 3253	217.8	107.8	3.3	3.2	3.0	1.6	3.0	2.3	3.6	3304	12
PAN 6193	219.0	100.3	3.1	3.0	2.8	1.9	3.0	1.0	3.5	4430	8
PAN 6195	226.8	106.0	3.3	3.1	2.5	1.6	3.0	2.0	3.9	6987	4
SC 707	268.0	127.5	3.0	3.5	3.4	1.5	3.0	1.8	3.6	5108	6
SC 93C3813	230.8	110.8	3.3	2.9	1.6	1.4	2.8	2.3	3.0	7756	1
LONGE 1	200.0	96.0	2.5	3.3	1.9	1.8	3.0	0.5	2.8	4070	10
GLS COMPE	206.5	101.8	2.6	3.0	2.5	1.8	3.0	0.8	2.6	4260	9
NZ 2	225.3	101.3	2.1	2.6	1.8	1.6	2.3	0.0	2.1	7628	2
NZ 1	243.0	129.5	1.4	3.1	2.4	1.5	2.3	0.3	2.3	4977	7
NZ 3	226.8	110.8	1.6	2.8	2.1	1.5	3.0	1.5	2.2	7294	3
MEAN	225.3	107.8	2.6	3.1	2.4	1.6	2.8	1.2	3.2	5424	
LSD (0.05)	21.8	21.6	0.5	0.4	0.9	0.4	0.5	1.5	0.9	2275	
CV (%)	6.7	13.9	12.6	8.9	26.2	16.2	11.9	88.9	17.2	29.2	

Table 4. Performance of entries in the advanced yield trial at Kamenyamiggo 1996B

Entry	Husk cover	Stem lodging	Root lodging	Ears rotten	Grain texture	GLS	NLB	Yield	Yield Ranking
	1-5 scale	---------- counts ----------			---------- 1-5 scale ----------			kg/ha	
LP 16	2.8	4.0	0.0	0.8	3.0	3.0	3.5	5898	11
P1=x1264JW	3.5	0.3	0.0	0.0	4.8	3.5	3.9	6972	5
PHB 3253	2.8	0.0	0.5	3.8	3.8	4.6	3.4	6523	9
PAN 6193	2.3	6.5	1.0	0.0	3.5	2.9	4.9	7918	3
PAN 6195	3.3	5.0	0.0	0.0	3.0	3.5	4.5	8242	2
SC 707	3.3	2.3	0.0	0.0	5.0	5.0	2.5	6749	7
SC 93C3813	3.0	1.0	0.5	1.3	4.5	1.5	1.8	6546	8
LONGE 1	2.5	2.8	0.3	0.0	2.8	2.8	3.1	5420	12
GLS COMPE	2.3	4.3	0.0	0.0	2.8	2.8	2.5	6856	6
NZ 2	3.3	5.0	0.0	0.0	1.8	2.3	2.2	7305	4
NZ 1	2.0	6.0	0.0	0.0	2.3	2.8	1.8	6286	10
NZ 3	3.5	6.3	0.0	0.0	1.3	2.4	1.8	8249	1
MEAN	2.9	3.9	0.1	0.2	3.5	3.2	3.0	6914	
LSD (0.05)	N	NS	NS	NS	0.7	0.7	0.6	1972	
CV (%)	26.1	77.2	60.6	41.0	13.3	16.3	13.3	16.3	

Table 5. Performance of entries in the advanced yield trial at Serere, 1996B

Entry	Plant height	Ear height	Ear aspect	Ears rotten	Husk cover	Yield	Ranking of yield
	-------- cm ----------		---- 1-5 scale	% age		kg/ha	
LP 16	161.3	70.0	3.3	0.3	2.3	3840	9
P1X1264JW	163.8	85.0	3.0	0.3	2.1	3733	8
PHB 3253	181.3	102.5	2.8	0.0	2.1	5360	2
PAN 6193	162.5	87.5	3.3	1.5	3.2	4240	7
PAN 6195	176.3	101.3	2.8	2.5	2.6	5173	5
SC 707	192.5	103.8	2.3	1.8	2.9	5600	1
SC 93C3813	190.0	91.3	3.0	3.5	3.8	5333	3
LONGE 1	170.0	90.0	3.3	0.5	2.6	3093	11
GLS COMPE	170.0	91.3	3.5	0.8	2.5	3040	12
NZ 2	162.5	88.8	2.3	0.0	2.1	4933	6
NZ 1	161.3	92.5	2.3	0.0	2.0	3653	10
NZ 3	177.5	101.3	2.3	1.8	1.6	5333	3
MEAN	172.4	90.1	2.8	1.1	2.5	4444	
LSD (0.05)	18.2	13.7	0.7	2.6	0.8	1287	
CV (%)	7.3	10.3	16.1	67.5	21.6	20.2	

Table 6. Across location mean yield (kg/ha) of varieties tested 1996B

	LOCATION					
Entry	**NAARI**	**IKULWE**	**KAMENYAMIGGO**	**SAARI**	**MEAN**	**RANKING**
LP16	4192 (12)[a]	3580 (11)	5898 (8)	3840	4378	11
P=X1264JW	4578 (9)	5688 (5)	6972 (5)	3733 (9)	5243	6
3253	5105 (7)	3304 (12)	6523 (9)	5360 (2)	5073	8
PAN	4309 (11)	4430 (8)	7918 (3)	4240 (7)	5224	7
PAN 6195	5777 (4)	6987 (4)	8241 (2)	5173 (5)	6545	4
SC 707	5347 (5)	5108 (6)	6749 (7)	5600 (1)	5701	5
SC 93C3813	6833 (2)	7756 (1)	6546 (8)	5333 (3)	6617	3
LONGE 1	4488 (10)	4070 (10)	5420 (12)	3093 (11)	4268	12
GLS COMPE	4853 (8)	4260 (9)	6856 (6)	3040 (12)	4752	10
NZ2	7465 (1)	7628 (2)	7305 (4)	4933 (6)	6833	1
NZ1	5286 (6)	4977 (7)	6286 (10)	3653 (10)	5051	9
NZ3	6088 (3)	7294 (3)	8249 (1)	5333 (3)	6741	2
MEAN	5360	5424	6914	4444		
LSD (0.05)	1667	2275	1972	1287		
CV (%)	21.6	29.2	16.3	20.2		

[a]Figures in parentheses are rankings

Table 7. Performance of entries in the advanced yield trial at NAARI, 1997A[a]

Entry	Grain texture	Ear aspect	Ears rotten %	Yield	Yield ranking
	---score (1-5)----			kg/ha	
Pan 5197	3.1	3.4	0.8	1952	3
Pan 67	3.1	3.4	0.7	1549	10
Katumani	3.9	4.6	0.6	1139	15
H 626	3.0	3.5	0.5	1623	9
Longe 1	2.9	2.6	0.7	1186	14
Pi 30B17	3.5	3.2	0.8	1308	13
NZ3	**2.8**	**3.4**	**08**	**1685**	**7**
ZM 607	3.5	3.4	0.7	1832	4
H 511	3.6	3.4	0.7	1647	8
NZ1	**2.9**	**3.3**	**0.9**	**2153**	**3**
H 622	3.6	3.5	0.5	1326	12
H 512	3.8	3.4	0.8	1726	6
LP16	**3.6**	**3.7**	**0.9**	**1430**	**11**
NZ2	**2.8**	**3.2**	**1.1**	**2348**	**1**
H 614D	3.2	3.2	0.7	1774	5
H 625	3.4	3.4	0.7	2348	2
Mean	**3.3**	**3.5**	-	**1670**	
LSD(0.05)	**0.9**	**0.8**		**89.8**	
CV(%)	**18.3**	**16.4**	-	**37.7**	

[a]= First season was bad because of prolonged drought

Table 7. Performance of entries in the advanced yield trial at NAARI, 1997A*

Entry	Uniformity	Ease of picking	Lint % cotton	Yield kg/ha	Yield ranking
Pan 5197	3.1	3.4	0.8	1952	9
Pan 617	3.1	3.4	0.7	1540	10
Sokoman	2.9	4.0	0.9	1139	15
L 626	3.0	3.5	0.5	1623	8
Lompo 1	2.9	2.6	0.7	1180	14
Pi 30B17	3.5	3.2	0.8	1308	13
NZ3	2.8	3.4	08	1685	7
NZ1 607	3.1	3.5	0.7	1832	4
H 511	3.0	3.4	0.7	1647	8
NZ1	2.9	4.5	**0.9**	**2153**	**3**
H 622	3.0	4	0.7	1320	12
H 512	4.8	3.4	0.8	1729	6
L P16	3.6	3.7	**0.9**	**1810**	**11**
NZ2	2.8	3.2	1.1	**2318**	**1**
H 614D	3.2	3.0	0.7	1774	5
H 625	3.4	3.4	0.7	2348	2
Mean	**3.3**	**3.5**		**1670**	
LSD(0.05)	**0.9**	**0.8**		**89.8**	
C.V(%)	**18.3**	**16.4**	-	**37.7**	

*- First season was bad because of prolonged drought

Table 8. Performance of entries in the advanced yield trial at Ikulwe, 1997A

Entry	Days to flowering d	NLB	GLS	Grain Texture	Ear aspect	Ears rotten %	Yield	Yield ranking
		----------score (1-5)----------					Kg/ha	
Pan 5195	69	1.3	1.3	3.0	3.0	0.8	4545	8
Pan 67	66	1.3	2.3	2.8	3.0	0.9	5524	6
Katumani	54	1.0	1.4	2.5	3.3	0.7	2160	15
H 626	76	1.4	1.5	2.3	2.9	0.8	5551	5
Longe 1	61	1.2	2.0	2.1	3.0	0.9	4146	9
Pi 30B17	66	1.2	2.5	3.3	3.0	1.1	5770	2
NZ3	**73**	**1.2**	**1.5**	**1.5**	**2.8**	**0.1**	**5873**	**1**
ZM 607	65	1.3	1.8	3.0	3.1	0.9	3845	11
H 511	63	1.4	1.7	3.0	3.1	0.7	3898	10
NZ1	**71**	**1.2**	**1.8**	**1.5**	**3.0**	**0.9**	**5692**	**3**
H 622	72	1.0	2.0	2.0	2.9	0.7	3775	12
H 512	68	1.9	2.0	2.9	3.0	0.8	3548	14
LP 16	57	1.3	1.8	2.4	3.1	1.1	3718	13
NZ2	**70**	**1.3**	**1.8**	**1.9**	**2.8**	**0.9**	**5692**	**3**
H 614	73	1.3	1.3	2.8	2.9	0.8	5267	7
Mean	**67.2**	**1.3**	**1.8**	**2.6**	**3.0**		**4601**	
LSD (0.05)	**3.8**	**0.3**	**NS**	**1.1**	**NS**		**1590**	
CV(%)	**4.0**	**18.2**	**30.6**	**31.0**	**7.2**		**24.2**	

Table 8. Performance of entries in the advanced yield trial at Ilkalwa, 1997A

Entry	Days to flowering	NLF	S.S	Grain weight	Ear rotten	Lodging	Yield	Yield ranking
	d	——— score (1–5) ———			%		kg/ha	
Pan 5195	60	1.5	1.3	3.0	0.8		4545	8
Pan 07	66	1.5	2.3	2.8	0.9		3524	5
Saturnan	54	1.0	1.4	2.5	3.3		0.7	2160
H 628	76	1.4	1.5	2.2	2.9		0.8	3551	6
Longe 1	61	1.2	2.0	2.1	4.0		0.9	4146	2
[illegible] 30817	69	1.2	2.5	3.2	4.0		1.1	5720	1
NZ1	73	**1.2**	**1.5**	**1.5**	**2.8**		**0.1**	**5873**	**1**
YM 607	63	1.3	1.8	3.0	3.1		0.9	3943	11
H 611	62	1.4	1.7	2.9	2.1		0.7	3898	12
NZ1	71	**1.2**	**1.8**	**1.5**	**3.0**		**0.9**	**5892**	3
H 622	72	1.0	2.0	3.0	2.9		0.7	3775	12
H 712	69	1.0	2.0	2.9	3.0		0.8	3548	14
LP 16	57	1.3	1.8	4	3.1		1.1	3718	13
NZ2	70	**1.3**	**1.8**	**1.9**	**2.8**		**0.9**	**5892**	4
H 614	73	1.1	1.5	2.9	2.3		0.9	5267	7
Mean	67.2	1.2	1.9	2.6	3.0			4601	
LSD (0.05)	3.8	0.2	NS	1.1	NS			1500	
CV (%)	4.0	18.2	30.6	31.0	7.2			24.2	

Table 9. Performance of entries in the advanced trial at Kamenyamiggo 1997A

Entry	NLB	GLS	Grain texture	Ear Aspect	Yield	Yield ranking
	----------score (1-5)----------				kg/ha	
Pan 5195	1.6	8.8	3.9	3.8	4479	6
Pan 67	1.9	10.0	3.5	3.4	5469	5
Katumani	2.0	12.5	4.0	3.8	3321	10
H626	1.5	6.2	2.5	3.5	2866	15
Longe 1	2.1	10.0	4.0	4.0	3148	12
PI30B17	1.9	11.2	4.5	2.9	6581	1
NZ3	**1.8**	**4.2**	**3.0**	**3.0**	**5952**	**2**
ZM607	2.1	7.5	4.0	3.9	3209	11
H511	1.8	7.5	4.2	3.5	2890	14
NZ1	**1.5**	**8.0**	**3.3**	**3.5**	**5811**	**3**
H 622	1.5	10.0	3.0	3.9	3723	8
H 512	1.6	9.2	3.6	3.9	3080	13
LP16	**2.1**	**11.2**	**4**	**3.8**	**3578**	**9**
NZ2	**2.1**	**4.8**	**2.5**	**3.1**	**5625**	**4**
H614D	2.1	4.8	2.6	3.9	3750	7
Mean			**3.5**	**3.6**	**4233**	
$LSD_{(0.05)}$			**0.8**	**NS**	**2006**	
CV (%)			**15.5**	**17.3**	**33.2**	

Table 9. Performance of entries in the advanced trial at Kwanongwango 1972A

Entry	MLB	PLS	Grain moisture	Lodging	Yield	Yield ranking
	——— score (1–9) ———				kg/ha	
Tag 3195	1.0	8.9	3.0	3.8	4172	6
Line 07	1.9	10.0	2.5	4.4	5469	5
Kwamani	2.0	12.5	4.0	3.8	4321	10
IN52a	1.5	9.2	2.5	3.5	2800	15
Tuxpa 1	2.1	10.0	4.0	4.0	4148	12
2Sub17	1.0	11.2	4.5	2.0	6581	1
VA3	**1.8**	**4.2**	**4.0**	**3.0**	**5952**	**2**
2Alm07	2.1	7.5	4.0	3.9	3209	11
2511	1.8	7.5	4.2	3.5	3490	14
VA1	1.5	8.0	3.5	3.5	**5811**	**3**
B 232	1.5	10.0	3.0	4.0	3723	8
B 512	1.0	9.2	3.5	3.5	3080	13
LP16	2.1	11.2	4	3.8	**3578**	**9**
VA2	2.1	4.8	2.5	3.1	**5625**	**4**
[blank]	2.1	4.5	2.0	3.9	5720	7
Mean			3.5	3.6	4233	
LSD(0.05)			0.8	NS	2006	
CV (%)			12.5	17.3	33.2	

Table 10. Performance of entries in the advanced yield trial at lower Mbale, 1997A

Entry	NLB	GLS	Husk cover	Ear aspect	Grain Texture	Ears/ plant	Yield	Yield ranking.
	----------score (1-5)----------						Kg/ha	
Katumani	1	1	3.0	3.7	3.1	0.8	2622	13
H 626	1	1	1.6	2.5	2.2	1.0	5674	2
Longe 1	1	1	2.6	3.0	3.0	0.9	5276	4
Pi 30b17	1	1	2.5	3.0	4.5	0.9	5487	3
NZ3	**1**	**1**	**1.4**	**3.5**	**2.6**	**1.2**	**3949**	**8**
ZM 607	1	1	2.9	3.0	3.7	1.1	4527	7
H 511	1	1	2.0	3.0	3.0	0.7	3697	10
NZ1	**1**	**1**	**1.0**	**3.0**	**3.6**	**1.0**	**5208**	**5**
H 622	1	1	2.1	2.9	3.1	0.7	3881	9
H 512	1	1	2.1	2.9	3.8	1.1	4590	6
LP 16	**1**	**1**	**3.1**	**2.4**	**2.2**	**0.7**	**2496**	**12**
NZ2	**1**	**1**	**2.5**	**2.6**	**3.1**	**1.1**	**5700**	**1**
H 614D	1	1	1.2	2.6	2.6	0.9	3687	11
Mean	**1.0**	**1.0**		**2.9**	**3.1**	**-**	**4369**	
$LSD_{(0.05)}$	**NS**	**NS**		**0.8**	**0.8**	**-**	**1861**	
CV (%)	**4.3**	**2.8**		**18.6**	**18.7**	**-**	**29.7**	

Table 11. Performance of entries in the advanced yield trial at Bulegeni,1997A

Entry	NLB	GLS	Ear aspect	Grain Texture	Ears/ plant	Yield	Yield ranking
	----------score (1-5)----------					Kg/ha	
Katumani	1	1	3.3	3.0	1.1	3881	13
H 626	1	1	2.0	2.6	1.0	8874	4
Longe 1	1	1	3.0	3.0	1.2	7414	8
Pi 30b17	1	1	2.5	3.6	1.2	9578	1
NZ3	**1**	**1**	**2.0**	**2.5**	**1.4**	**8585**	**5**
ZM 607	1	1	3.0	3.0	1.2	7889	6
H 511	1	1	2.7	3.1	1.2	6873	10
NZ1	**1**	**1**	**2.5**	**2.4**	**1.4**	**9193**	**3**
H 622	1	1	2.2	3.5	1.1	7222	9
H 512	1	1	2.5	3.8	1.0	6326	12
LP 16	**1**	**1**	**3.0**	**2.8**	**1.2**	**6811**	**11**
NZ2	**1**	**1**	**2.0**	**2.0**	**1.4**	**9425**	**2**
H 614D	1	1	2.0	3.1	1.3	7743	7
Mean						**7701**	
$LSD_{(0.05)}$						**1310**	
CV (%)						**11.9**	

Table 10. Performance of entries in the advanced yield trial at Ismer, Nibale, 1997A

Entry	NLB	DLS	Husk cover	Ear aspect	Grain Texture	Ears plant	Yield kg/ha	Yield ranking
	---Score (1-5)---							
Katumani	1	1	4.0	3.7	3.1	0.8	2327	13
H 624	1	1	1.0	2.5	2.2	1.0	5072	2
Longe 1	1	1	2.0	3.0	3.1	0.9	5270	4
P. 89b17	1	1	2.5	3.0	4.5	0.7	3583	3
WS2	1	1	1.4	3.5	2.6	1.2	5949	8
624.007	1	1	2.9	3.0	2.7	1.1	4527	7
H 511	1	1	2.0	3.0	3.0	0.7	3697	10
WS1	1	1	1.0	3.0	3.0	1.0	5208	5
H 622	1	1	2.1	2.9	3.1	0.7	3583	9
H 612	1	1	2.1	2.9	3.4	1.1	4590	6
LP 16	1	1	3.1	2.4	2.2	0.7	2496	12
WS2	1	1	2.5	2.6	3.1	1.1	5700	1
H 614	1	1	2.5	2.6	2.6	0.9	3583	11
Mean	1.0	1.0		2.9	3.1	-	4500	
LSD(0.05)	NS	NS		0.8	0.8	-	1561	
CV (%)	4.5	2.8		18.0	18.7	-	29.7	

Table 11. Performance of entries in the advanced yield trial at Bulegeni,1997A

Entry	NLB	DLS	Ear aspect	Grain Texture	Ears plant	Yield kg/ha	Yield ranking
	---Score (1-5)---						
Katumani	1	1	3.2	3.0	1.1	2581	13
H 624	1	1	2.0	2.6	1.0	5824	4
Longe 1	1	1	3.0	3.0	1.2	7414	8
P. 89b17	1	1	2.2	3.0	1.2	6578	1
WS2	1	1	2.0	2.5	1.4	8586	5
624.007	1	1	3.0	3.0	1.2	7389	6
H 511	1	1	2.1	3.1	1.2	6472	10
WS1	1	1	2.5	2.5	1.4	9193	3
H 622	1	1	2.2	3.5	1.1	7122	9
H 612	1	1	2.9	3.0	1.0	6320	12
LP 16	1	1	3.0	2.8	1.2	6811	11
WS2	1	1	2.0	2.0	1.4	9425	2
H 614	1	1	2.0	2.1	1.3	7743	7
Mean						7701	
LSD(0.05)						1510	
CV (%)						11.9	

Table 12. Performance of entries in the advanced yield trial at Kapchorwa, 1997A

Entry	NLB	GLS	Grain texture	Ear Aspect	Ear per plant	Yield	Yield ranking
		--------score (1-5)---------			No.	Kg/ha	
Pan 5195	1	1	2.7	3.3	1.2	5609	10
Pan 67	1	1	2.3	3.0	1.6	7238	3
Katumani	1	1	2.8	4.0	0.7	1863	16
H 626	1	1	1.9	2.3	1.5	7787	1
Longe 1	1	1	2.5	3.0	1.3	4894	14
Pi 30B17		1	3.8	2.8	1.2	7448	2
NZ3	**1**	**1**	**2.5**	**3.0**	**1.5**	**6424**	**6**
ZM 607	1	1	2.8	3.0	1.4	5428	12
H 511	1	1	3.0	2.8	1.2	5564	11
NZ1	**1**	**1**	**2.6**	**3.3**	**1.2**	**4908**	**13**
H 622	1	1	3.8	2.8	1.2	5970	8
H 512	1	1	3.6	2.8	1.2	6460	5
LP 16	1	1	2.4	3.2	1.2	3424	15
NZ2	**1**	**1**	**1.9**	**3.0**	**1.4**	**5668**	**9**
H 614	1	1	2.5	2.8	1.5	7009	4
H 625	1	1	2.4	2.5	1.3	6361	7
Mean			**2.7**	**3.0**		**5754**	
$LSD_{(0.05)}$			**0.7**	**0.6**		**2152**	
CV (%)			**18.3**	**13.2**		**26.3**	

Table 13. Performance of entries in the advanced yield trial at Serere, 1997A

Entry	Husk cover	Grain Texture	Ear aspect	Plant aspect	Ears / plant	Yield	Yield ranking
	----------	-score (1-5)----------			No	Kg/ha	
Katumani	1.8	2.1	3.5	2.6	1.3	464	13
H 626	1.8	2.1	2.7	3.6	0.9	3631	7
Longe 1	2.4	2.9	3.2	3.1	1.0	3886	5
Pi 30b17	1.6	3.7	3.2	3.1	0.9	4638	4
NZ3	**1.6**	**2.0**	**2.5**	**3.0**	**1.1**	**5525**	**1**
ZM 607	2.5	3.3	3.5	3.3	0.9	3085	11
H 511	2.5	2.9	3.5	3.3	1.0	2163	12
NZ1	**1.2**	**1.9**	**3.0**	**3.0**	**1.2**	**4707**	**3**
H 622	1.9	2.6	3.3	3.3	1.1	3666	6
H 512	1.8	3.5	3.0	3.4	1.0	3328	8
LP 16	**1.6**	**2.9**	**3.8**	**3.3**	**0.9**	**3104**	**10**
NZ2	**1.6**	**1.8**	**3.0**	**2.9**	**1.0**	**5133**	**2**
H 614D	1.7	2.6	3.0	3.5	1.2	3180	9
Mean	1.4	2.7	3.3	3.1		3565	
$LSD_{(0.05)}$	0.5	0.7	0.6	0.3		1369	
CV (%)	**22.9**	**17.4**	**12.2**	**6.8**		**26.8**	

Table 12. Performance of entries in the advanced yield trial at Kapchorwa, 1997A

Entry	Number of culms	Plant vigour	Days to 50% flowering	Days to maturity	Yield (kg/ha)	Yield ranking
Kan 5105	1	1	2.7	1.3	5309	10
Kan 017	1	1	2.7	2.0	7256	3
Kanyanya	1	1	2.9	2.0	7203	4
Kan 020	1	1	2.6	1.3	7587	1
Kan 026	1	1	2.8	2.0	7204	5
Kan 3029	1	1	2.8	2.0	7198	6
NZ3	**1**	**1**	**2.5**	**1.0**	**6424**	**9**
NZM 027	1	1	2.8	2.0	7128	15
H 511	1	1	2.8	2.0	7504	11
NZ1	**1**	**1**	**2.6**	**3.3**	**8508**	**13**
H 022	1	1	2.8	2.0	6920	8
H 512	1	1	2.8	2.0	6866	8
LF 16	1	1	2.6	2.0	7124	14
NZ2	**1**	**1**	**2.0**	**3.0**	**7608**	**7**
H 013	1	1	2.8	2.0	6809	12
H 515	1	1	2.8	2.0	6801	7
Mean			2.7	2.0	6754	
LSD(0.05)			0.7	0.6	2172	
C.V. (%)			18.2	18.2	20.2	

Table 13. Performance of entries in the advanced yield trial at Serere, 1997A

Entry	Number of culms	Plant vigour	Days to 50% flowering	Days to maturity	Yield (kg/ha)	Yield ranking
Kanyanya	1.8	2.1	3.5	2.7	4694	15
H 026	1.8	2.1	3.2	3.0	5631	7
Kan 020	2.4	2.0	3.2	3.3	5986	2
NZM 027	1.6	1.7	3.2	3.3	5618	4
NZ3	**1.6**	**2.0**	**2.5**	**3.0**	**5524**	**1**
NZM 017	2.2	2.3	3.2	3.0	5705	11
H 511	2.4	2.0	3.5	3.0	5613	12
NZ1	**1.2**	**1.9**	**3.0**	**3.3**	**4707**	**3**
H 022	1.6	2.0	3.5	3.3	5009	6
H 512	1.6	2.5	3.0	3.3	5132	8
LF 16	**1.6**	**2.0**	**2.8**	**3.3**	**5104**	**10**
NZ2	**1.0**	**1.8**	**3.0**	**2.9**	**5127**	**2**
H 013	1.7	2.0	3.2	3.3	5134	9
Mean	1.4	2.7	3.2	3.1	5504	
LSD(0.05)	0.5	0.7	0.6	0.3	1305	
C.V. (%)	**22.9**	**17.4**	**12.2**	**6.8**	**16.8**	

Table 14. Across location mean yield (kg/ha) of varieties tested 1997A

Entry	NAARI	IKULWE	KAMENYAMIGGO	SAARI	UPPER MBALE (BULEGENI)	LOWER MBALE	KAPCHORWA	MEAN	RANKING
PAN 5195	1952 (3)	4545 (8)	4479 (6)	-	-	-	5609 (10)	-	
PAN 67	1549 (10)	5524 (6)	5469 (5)	-	-	-	7238 (3)	-	
KATUMANI	1139 (15)	2160 (15)	3321 (10)	464 (13)	3881 (13)	2622 (13)	1863 (16)	2207	13
H626	1623 (9)	5551 (5)	2866 (15)	3631 (7)	8874 (4)	5674 (2)	7787 (1)	5144	5
LONGE 1	1186 (14)	4146 (9)	3148 (12)	3886 (5)	7414 (8)	5276 (4)	4894 (14)	4279	7
P130B17	1308 (13)	5770 (2)	6581 (1)	4638 (4)	9578 (1)	5487 (3)	7448 (2)	5830	1
NZ 3	1685 (7)	5873 (1)	5952 (2)	5525 (1)	8585 (5)	3949 (8)	6424 (6)	5428	3
ZM 607	1832 (4)	3845 (11)	3209 (11)	3085 (11)	7889 (6)	4527 (7)	5428 (12)	4259	8
H 511	1647 (8)	3898 (10)	2890 (14)	2163 (12)	6873 (10)	3697 (10)	5564 (11)	3819	11
NZ 1	2153 (3)	5692 (3)	5811 (3)	4707 (3)	9193 (3)	5208 (5)	4908 (13)	5382	4
H 622	1326 (12)	3775 (12)	3723 (8)	3666 (6)	7222 (9)	3881 (9)	5970 (8)	4223	9
H 512	1726 (6)	3548 (14)	3080 (13)	3328 (8)	6326 (12)	4590 (6)	6460 (5)	4151	10
LP 16	1430 (11)	3718 (13)	3578 (9)	3104 (10)	6811 (11)	2496 (12)	3424 (15)	3509	12
NZ 2	2348 (1)	5692 (3)	5625 (4)	5133 (2)	9425 (2)	5700 (1)	5668 (9)	5656	2
H 614 D	1774 (5)	5269 (7)	3750 (7)	3180 (9)	7743 (7)	3687 (11)	7009 (4)	4630	6
H 625	2348 (2)	-	-	-	-	-	6361 (7)	-	
MEAN	1670	4601	4233	3565	7701	4369	5754		
LSD (0.05)	898	499.5	2006	1350	1310	1861	2152		
CV (%)	37.7	24.2	33.2	26.8	11.9	29.7	26.3		

Table 15.

Performance of entries in the advanced yield trial at NAARI, 1997B.

Entry	Plant height	Ear height	Days to flowering	Ears/ plant	rotten ears	NLB	GLS	Ear aspect	Husk cover	Grain texture	Yield	Yield ranking
	--------cm-------		d		%		----------score (1-5)----------				kg/ha	
Pan 67	223.5	103.2	67	1.0	3.8	1.6	3.5	2.6	2.9	2.6	7399.0	10
LP16	188.2	85.2	62	0.9	2.7	1.9	3.4	2.7	2.5	3.0	6094.3	13
Longe 1	246.5	128.2	67	1.1	1.1	1.8	2.5	2.8	2.5	3.0	7049.0	11
NZ1	**227.0**	**135.2**	**71**	**1.1**	**0.6**	**1.4**	**2.8**	**2.6**	**2.0**	**2.6**	**7910.5**	**6**
NZ2	**217.2**	**110.0**	**70.8**	**1.0**	**0.4**	**1.5**	**3.3**	**2.4**	**2.1**	**2.6**	**8440.8**	**5**
Katumani	181.0	.80.8	84.0	0.8	3.6	1.5	2.2	4.0	2.6	3.4	2730.4	17
NZ3	**226.0**	**140.0**	**71.0**	**1.2**	**0.8**	**1.9**	**2.6**	**2.6**	**2.1**	**2.6**	**9741.6**	**2**
NZ4	**228.5**	**115.5**	**70.0**	**0.9**	**0.6**	**1.6**	**3.5**	**2.7**	**2.2**	**2.6**	**7766.5**	**7**
SC 621	252.3	120.5	65.0	1.0	2.9	1.4	3.5	3.0	3.2	3.4	7485.4	9
SC Exp. 1	247.0	131.3	68	1.2	1.3	1.5	1.6	2.5	2.5	3.3	11463.2	1
SC Exp. 2	249.0	131.3	66	0.9	1.5	1.9	1.4	2.9	3.0	3.3	9702.5	3
SC 625	226.5	126.8	68	1.0	2.2	1.6	2.0	2.6	2.9	3.6	9153.3	4
EVS 885	240.5	118.8	67	1.2	3.4	1.6	2.6	3.0	3.1	2.9	7548.2	8
Pan 6193	221.2	107.2	63	0.9	4.0	1.5	3.9	3.2	3.3	3.4	6096	12
H 622	260.2	146.8	75	0.9	4.8	1.5	3.5	3.0	3.3	3.0	5174.6	16
H 511	253.5	132.8	65	0.8	5.0	1.5	3.5	3.0	2.6	3.3	5276.8	15
H 512	256.0	139.2	66	0.8	4.9	1.8	3.0	2.8	3.6	3.3	5343.3	14
Mean	**232.0**	**120**	**69.3**		**2.6**	**1.6**	**2.9**	**2.9**	**2.7**	**3.1**	**7316**	
$LSD_{(0.05)}$	**26.3**	**21.3**	**2.6**		**3.2**	**0.3**	**2.8**	**0.4**	**0.5**	**0.4**	**1553**	
CV (%)	**8.0**	**12.4**	**2.6**		**76.6**	**15.2**	**14.6**	**9.5**	**12.5**	**10.2**	**14.9**	

Table 15

Performance of entries in the advanced yield trial at NAARI, 1997B

Entry	Plant height (cm)	Ear height (cm)	Days to flowering (d)	Lam. plant (°)	Lodging (%)	NLB	GLS	Ear aspect (score 1-5)	Husk cover (score 1-5)	Grain texture (score 1-5)	Yield (kg/ha)	Yield comb. $
Pan 07	223.5	109.3	67	1.0	3.8	1.6	3.4	2.6	2.9	2.6	7309.0	10
LP10	188.2	86.2	62	0.9	2.7	1.0	3.4	2.7	2.2	3.0	6064.2	13
Longe 1	246.5	124.2	67	1.1	3.1	1.8	2.5	2.8	1.9	2.0	7040.1	11
NZ1	227.0	135.2	71	1.1	0.6	1.4	2.8	2.6	2.0	2.6	7910.5	6
NZ2	217.2	110.0	70.8	1.0	0.4	1.5	3.3	2.4	2.1	2.6	8410.8	5
Kabuni21	193.0	90.8	54.0	0.9	7.0	1.5	2.2	4.0	2.6	3.4	2740.4	17
NZ3	229.0	140.0	71.0	1.2	0.8	1.9	2.6	2.0	2.1	2.6	9711.6	2
NZ4	228.5	115.5	70.0	0.9	0.6	1.6	3.5	2.7	2.2	2.6	7765.5	7
SC 021	252.3	130.5	65.0	1.0	1.0	1.4	3.5	3.0	3.5	3.4	7483.4	9
SC Exp 1	247.0	141.3	68	1.2	0.2	1.5	3.6	2.7	2.5	3.3	11473.2	1
SC Exp 2	249.0	131.2	66	0.9	0.6	1.9	3.4	2.9	3.0	3.3	9702.3	3
SC 025	250.5	129.8	68	1.0	0.2	1.6	3.0	2.9	2.9	3.6	9173.3	4
EW5 295	240.5	119.8	67	1.2	0.4	1.8	2.8	3.0	3.1	2.9	7498.2	8
Lan 0101	237.2	110.2	62	0.9	1.0	1.5	3.9	3.2	3.3	3.4	6807.1	12
H 622	260.2	150.8	75	0.9	1.8	1.5	3.5	3.0	2.5	3.0	11174.0	1
H 511	229.5	132.8	65	0.8	0.8	1.5	2.5	3.0	2.6	2.8	9270.8	15
H 512	250.0	150.2	66	0.9	1.0	1.8	3.0	2.8	3.6	2.8	9743.9	14
Mean	232.0	120	69.3		2.6	1.6	2.9	2.9	2.7	2.1	7310	
LSD 0.05	26.1	21.2	2.6		3.2	0.3	2.8	0.4	0.5	0.4	1553	
CV (%)	8.0	12.4	2.6		76.6	15.2	14.6	9.5	12.5	10.2	14.9	

Table 16.

Performance of entries in the advanced yield trials at Ikulwe,1997B.

Entry	Days of flowering cm	Husk	Ear aspect	NLB	Rust	Yield	Yield ranking
		---------- score (1-5)----------				kg/ha	
NZ4	**67**	**1.8**	**3**	**1.8**	**1.8**	**5156**	**4**
SC Expt.1	65	3.4	3	2.1	1.8	4419	7
H 511	66	3.3	3.8	2.3	1.9	2211	11
SC 621	66	3	4.5	1.5	1.9	4115	8
Katumani	56	2.6	3.8	1.4	1.2	450	14
H 622	67	3.1	3.0	1.5	1.9	2079	12
NZ1	**66**	**1.6**	**3.7**	**1.1**	**1.3**	**5362**	**3**
H 512	67	3.0	3	2.1	2.0	2482	10
NZ3	**67**	**1.5**	**3**	**1.6**	**1.4**	**4061**	**5**
SC Expt. 2	67	2.6	3	1.5	1.9	5891	1
NZ2	**67**	**2.7**	**3**	**1.6**	**1.4**	**5551**	**2**
SC 625	67	3.1	3	1.6	1.4	4967	6
Longe 1	65	1.8	3.5	1.6	1.3	2809	9
LP 16	**60**	**2.7**	**4**	**1.5**	**1.2**	**1896**	**13**
Mean						**3675**	
$LSD_{(0.05)}$						**1309**	
CV (%)						**24.9**	

Table 19.

Table 17.

Performance of entries in the advanced yield trial at Kamenyamiggo,1997B.

Entry	Days to flowering d	Ears Aspect	Husk cover	Grain texture score (1-5)	NLB	GLS	Yield kg/ha	Yield ranking
NZ4	**84**	**2.6**	**2.3**	**2.5**	**1.8**	**3.6**	**7150**	**9**
Longe 1	78	3.0	2.6	3.3	1.8	2.5	7050	11
H622	81	3.1	2.5	3.2	1.1	4.6	6282	14
Katumani	63	4.0	2.6	3	0.0	0.0	3257	16
H512	79	3.0	3.2	3.3	1.6	3.5	7113	10
H511	78	3.0	2.5	3.1	1.6	2.8	7250	8
Pan 6193	72	3.1	2.7	3.2	1.5	4.5	6706	13
LP16	**72**	**3.2**	**2.8**	**3**	**2.2**	**2.9**	**4791**	**15**
Pan 67	76	2.9	3.4	2.6	1.5	3.3	7847	7
Sc 621	76	3.0	2.8	3.1	1.1	2.9	8556	5
S c 625	81	2.5	3.3	3.1	2.0	1.2	9254	3
Sc Exp.1	80	2.6	2.0	2.5	1.4	1.6	10090	2
Sc Exp.2	76	2.6	3.0	3.1	1.6	1`.0	10610	1
NZ1	**82**	**3.0**	**1.7**	**2.5**	**1.0**	**4.5**	**6858**	**12**
NZ2	**81**	**2.6**	**2.0**	**2.5**	**1.7**	**3.9**	**8829**	**4**
NZ3	**83**	**2.4**	**2.3**	**2.5**	**2.4**	**3.1**	**8398**	**6**
Mean							**7503**	
$LSD_{(0.05)}$							**1832**	
CV (%)							**17.1**	

Table 12.

Performance of entries in the advanced yield trial at Kamenyamigo,1997B.

Entry	Days to flowering	Ears Aspect	Husk cover	Grain texture	NLB	GLS	Yield	Yield ranking
	d	----------	----------	score (1-5)	----------	----------	kg/ha	
NZ4	**84**	2.6	**2.5**	**2.5**	**1.8**	**3.6**	**7150**	**9**
Longe 1	78	3.0	2.6	3.3	1.8	2.5	7050	11
Flo22	81	3.1	2.5	3.2	1.1	4.6	6282	14
Katumani	83	4.0	2.6	3	0.0	0.0	3257	16
H512	78	3.0	3.2	3.3	1.8	3.5	7117	10
H511	78	3.0	2.5	3.1	1.6	2.8	7250	8
Pan 6193	72	3.4	2.7	3.2	1.5	4.5	6700	13
L.P16	72	3.3	2.8	3	2.2	2.9	4791	**15**
Pan 67	76	2.9	3.4	2.6	1.8	3.3	7847	7
Sc 621	78	3.0	2.8	3.1	1.7	2.9	8550	5
Bic 625	81	2.8	3.4	3.1	2.0	1.2	9254	3
Sc Exp 1	80	2.6	2.0	2.5	1.4	1.6	10090	2
Sc Exp 2	76	2.6	3.0	3.1	1.6	1.0	10610	**1**
NZ1	**82**	**3.0**	**1.7**	**2.5**	**1.0**	**4.5**	6858	**12**
NZ2	**81**	2.6	**2.0**	**2.5**	**1.7**	**3.9**	8829	**4**
NZ3	83	2.4	**2.3**	**2.5**	2.1	3.1	8398	6
Mean							7803	
LSD$_{0.05}$							1832	
CV (%)							17.7	

Table 18.

Performance of entries in the advanced yield trials at Masindi site,1997B.

Entry	Ear aspect	Grain texture	Husk cover	NLB	GLS	Yield	Yield ranking
	---------- score (1-5)----------					kg/ha	
LP 16	**3.4**	**2.9**	**2.5**	**3.0**	**1.8**	**3275**	**10**
Longe 1	3.5	2.8	2.1	2.6	1.7	2753	12
NZ1	**3.1**	**1.9**	**2**	**2.4**	**1.8**	**3737**	**6**
NZ2	**3.0**	**1.8**	**2**	**2.6**	**2.0**	**3822**	**5**
Katumani	3.7	3.1	2.8	3.2	2.6	1689	15
NZ3	**3.0**	**1.9**	**2**	**2.5**	**1.6**	**4156**	**3**
NZ4	**3.0**	**1.9**	**2**	**3.3**	**2.0**	**3672**	**9**
SC 621	3.1	3.1	2.5	2.3	1.6	4674	1
SC Expt. 1	2.9	1.6	2	1.8	1.2	4119	4
SC Expt. 2	3.1	3.1	2	2.4	1.4	4573	2
SC 625	3.3	2.3	2.3	2.6	1.5	3685	7
Pan 6193	3.5	2.8	2.4	2.4	2.1	3408	8
H 622	3.1	2.4	2.1	2.5	2.0	2507	14
H 511	3.4	2.6	2.3	2.5	1.8	3159	11
H 512	3.3	3.0		2.2	1.9	2554	13
Mean	**3.2**	**2.5**	**2.2**	**2.5**	**1.8**	**1071**	
$LSD_{(0.05)}$	**0.4**	**1.7**	**0.3**	**0.5**	**0.5**		
CV (%)	**9.4**	**15.5**	**9.3**	**14.3**	**20.8**		

Table 18.

Performance of entries in the advanced yield trials at Masindi site,1997B.

Entry	Ear aspect	Grain texture	Husk cover	NLB	GLS	Yield	Yield ranking
	score (1-5)					kg/ha	
I.P 16	3.4	2.9	2.5	**3.0**	**1.8**	**3275**	10
Longe 1	3.5	2.9	2.1	2.0	1.7	2753	12
NX1	3.1	1.9	2	**2.4**	**1.8**	**3737**	6
NX2	**3.0**	**1.8**	1	**2.0**	**2.0**	**3922**	5
Katumani	3.7	3.1	2.3	2.2	2.0	1089	15
NX3	**3.0**	**1.9**	**2**	**2.5**	**1.0**	**4156**	3
NX4	**3.0**	**1.9**	2	**3.3**	**2.0**	**3672**	9
[illegible]	3.1	3.1	2.5	2.3	1.6	4074	1
SC Duma 1	2.9	1.6	2	1.8	1.2	4119	4
SC Eyan 2	3.1	1.1	2	2.4	1.4	4593	2
SC 625	3.5	2.3	2.3	2.0	1.5	3689	7
Duma 01Sr	3.5	2.0	2.4	2.4	2.1	3402	8
H 622	3.1	2.4	2.1	2.5	2.0	2807	14
H 511	3.4	2.0	2.4	2.3	1.8	3170	11
H 512	3.3	2.0		2.2	1.9	2594	13
Mean	3.2	2.5	2.2	2.5	1.8	1071	
LSD$_{0.05}$	0.4	1.7	0.3	**0.5**	0.5		
CV (%)	9.4	15.5	9.3	**14.3**	20.8		

Table 19.

Performance of entries in the advanced yield trial at SAARI, 1997B.

Entry	Plant height	Ear height	Days to flowering	Lodge Root	Lodge Stem	Rotten ears	Ear aspect	Grain Texture	Yield	Rank
	-------cm-------		d	----------%----------			--- score (1-5)---		Kg/ha	
LP 16	**172**	**85**	**66**	**1.8**	**6.4**	**2.5**	**3.6**	**2.9**	**3546**	**12**
LONGE 1	191	96	73	0.8	2.4	1.1	3.0	2.9	4392	9
NZ1	**187**	**105**	**77**	**0.0**	**7.5**	**0.7**	**2.9**	**2.0**	**5387**	**2**
NZ2	**187**	**86**	**78**	**0.0**	**6.0**	**1.3**	**3.9**	**2.3**	**4935**	**3**
KATUMANI	174	79	59	2.0	4.9	6.7	3.6	3.0	1176	16
NZ3	**187**	**96**	**77**	**1.6**	**18.3**	**2.9**	**3.1**	**2.1**	**4420**	**8**
NZ4	**197**	**93**	**78**	**4.9**	**5.7**	**1.0**	**2.9**	**2.1**	**4530**	**7**
SC 621	201	96	72	4.2	5.8	2.4	2.8	2.6	4879	5
SC Expt. 1	210	108	78	1.6	6.5	0.3	2.5	2.1	5407	1
SC expt. 2	173	83	74	4.3	7.7	3.9	3.1	2.6	4059	10
SC 625	187	96	75	5.3	9.7	1.8	2.4	3.1	4882	4
PAN 6193	189	89	70	3.8	3.0	2.8	3.1	2.4	4831	6
H 622	188	103	80	15.0	5.3	5.4	3.0	3.1	3935	11
H 511	187	91	75	7.0	11.4		3.5	2.7	2580	14
H 512	219	115	74	9.3	17.6		3.1	3.1	3192	13
Mean	**190.9**	**94.9**	**74.1**	**1.2**	**2.3**	**2.4**	**3.0**	**2.6**	**4143**	
$LSD_{(0.05)}$	**19.9**	**14.5**	**2.1**	**NS**	**NS**	**2.0**	**2.0**	**0.4**	**1300**	
CV (%)	**7.2**	**10.7**	**2.0**	**68**	**93**	**58.7**	**13.6**	**11.3**	**22.0**	

Table 19.

Performance of entries in the advanced yield trial at SAARI, 1997H.

Entry	Plant height	Ear height	Days to flowering	Lodge Root	Lodge Stem	Rotten ears	Stay green	Grain Texture	Yield	Rank
	— cm —		d		— % —		— score (1–5) —		kg/ha	
LP 16	**172**	**85**	**66**	**1.8**	**0.4**	**2.5**	**3.6**	**2.9**	**1540**	**12**
LONGE 1	161	79	73	0.5	2.4	1.1	3.0	1.9	4302	9
NZ1	187	106	77	0.0	7.5	0.7	1.9	2.0	5587	2
NZ2	187	96	78	0.0	6.0	1.3	3.9	2.3	4039	3
KOTINKAL	174	70	80	2.0	1.9	0.7	3.6	1.0	1176	16
NZ3	167	86	77	1.0	18.3	2.9	3.1	2.1	**4420**	**6**
NZ4	197	93	78	**4.9**	8.7	1.0	2.9	2.1	4550	7
SC 621	177	96	77	4.2	4.4	2.4	2.8	2.6	4079	8
SC Expl 1	211	108	78	1.0	6.5	0.3	2.5	2.1	5417	1
SC Expl 2	173	84	79	4.3	7.7	1.2	3.1	2.4	4040	10
SC 625	187	96	76	5.3	9.7	1.8	2.4	3.1	4282	**9**
HAN 6129	180	90	79	3.8	8.0	2.8	3.1	2.4	4841	6
H 622	198	103	80	13.0	8.3	5.4	3.0	3.1	3942	11
H 511	187	91	75	7.0	11.4		3.5	2.7	4580	14
H 512	219	115	74	9.2	17.6		3.1	3.1	4102	13
Mean	**190.9**	**94.9**	**77.1**	**1.2**	**2.3**	**2.4**	**3.0**	**2.6**	**4144**	
LSD$_{0.05}$	10.9	14.5	2.1	**NS**	**NS**	2.0	2.0	0.4	1300	
CV (%)	7.2	10.7	2.0	68	93	58.7	12.6	11.3	22.0	

Table 20. Across location mean yield (kg/ha) of varieties tested 1997B

ENTRY	NAARI	IKULWE	KAMENYAMIGGO	SAARI	MASINDI	MEAN	RANKING
PAN 67 7399 (10)	-	7847 (7)	-	-	-	-	
LP 16	6094 (13)	1896 (9)	4791 (15)	3546 (12)	3275 (10)	3920	13
LONGE 1	7049 (11)	2809 (9)	7050 (11)	4392 (9)	2753 (12)	4811	9
NZ 1	7910 (6)	5362 (3)	6858 (12)	5387 (2)	3737 (6)	5851	7
NZ 2	8441 (5)	5551 (2)	8829 (4)	4935 (3)	3822 (5)	6316	4
KATUMANI	2730 (17)	450 (14)	3257 (16)	1176 (16)	1689 (15)	1860	14
NZ 3	9742 (2)	4061 (5)	8398 (6)	4420 (8)	4156 (3)	6155	5
NZ 4	7767 (7)	5156 (4)	7150 (9)	4530 (7)	3672 (9)	5655	8
SC 621	7485 (9)	4115 (8)	8556 (5)	4879 (5)	4674 (1)	5942	6
SC EXPT 1	11463 (1)	4419 (7)	10090 (1)	5409 (1)	4119 (4)	7099	1
SC EXPT 2	9703 (3)	5891 (1)	10610 (2)	4059 (10)	4573 (2)	6967	2
SC 625	9153 (4)	4967 (6)	9254 (3)	4882 (4)	3685 (7)	6388	3
EVS 885	7548 (8)	-	-	-	-	-	
PAN 6193	6096 (12)	-	6706 (13)	4831 (6)	3408 (8)	-	
H 622	5175 (16)	2079 (12)	6282 (14)	3935 (11)	2507 (14)	3996	12
H 511	5277 (15)	2211 (11)	7250 (8)	2580 (14)	3159 (11)	4095	11
H 512	5343 (14)	2482 (10)	7113 (10)	3192 (13)	2554 (13)	4137	10
MEAN	7316	3674	7503	4143	1071		
LSD (0.05)	1553	1309	1832	1300	1298		
CV (%)	14.9	24.9	17.1	22.0	17.8		

Table 21. Yield of maize varieties (Ton/ha) in the different districts when grown at 2 Fertilizer levels 1997A.

	Iganga			Masindi			Mbale			Mubende			Combined		
	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-fert	+fert	Mean
NZ1	4.30	4.00	4.15	4.51	4.76	4.64	6.12	6.88	6.50	5.70	5.74	5.74	5.16	5.35	5.26
NZ2	4.67	4.55	4.61	4.18	5.37	4.78	4.92	5.87	5.40	4.67	5.63	5.15	4.16	5.36	4.99
NZ3	4.22	3.75	3.99	4.54	4.89	4.72	5.15	6.98	6.07	4.56	5.40	4.98	4.62	5.26	4.94
H511	3.61	4.01	3.81	3.76	4.12	3.94	3.80	4.37	4.09	3.25	3.94	3.60	3.61	4.11	3.86
Longe 1	3.88	3.75	3.92	3.83	3.64	3.74	4.72	4.78	4.75	3.22	4.39	3.81	3.91	4.19	4.05
Mean	**4.14**	**4.05**	**4.10**	**4.16**	**4.56**	**4.36**	**4.94**	**5.78**	**5.36**	**4.28**	**5.02**	**4.65**	**4.37**	**4.85**	**4.61**
$LSD_{0.05}$			**0.46**			**0.90**			**1.69**			**1.25**			
Varieties															
$LSD_{0.05}$			**0.41**			**1.16**			**0.97**			**1.89**			
Fert x Variety															
CV (%)			**0.12**			**16.26**			**9.87**			**10.75**			

Table 21. Yield of maize varieties (Tons/ha) in the different districts when grown at 2

Fertilizer levels (200 Ca

	Iganga			Masindi			Mbale			Mubende			Combined		
	Ferti	+Ferti	Mean	-Ferti	+Ferti	Mean	-Ferti	+Ferti	Mean	-Ferti	+Ferti	Mean	-Ferti	+Ferti	Mean
9421	4.30	4.90	4.75	4.51	4.76	4.64	6.12	6.84	6.50	5.24	5.74	5.71	5.16	5.55	5.36
9422	4.67	4.95	4.91	4.58	5.27	4.75	4.42	5.87	5.40	4.47	5.03	5.15	4.16	5.36	4.76
9423	4.22	5.75	5.03	4.74	4.89	4.72	5.15	6.99	6.07	4.50	5.31	4.92	4.62	5.27	4.94
HS11	3.61	4.01	3.81	3.76	4.12	3.94	3.80	4.17	4.09	3.25	3.94	3.60	3.61	4.11	3.86
Longe 1	3.89	4.76	4.32	3.83	3.64	3.74	4.42	4.79	4.75	3.22	4.70	4.31	3.91	4.19	4.05
Mean	4.14	4.67	4.40	4.16	4.56	4.36	4.94	5.73	5.36	4.28	5.02	4.65	4.37	4.85	4.61
LSD$_{5\%}$			0.16			0.00			1.60			1.25			
Varieties															
LSD$_{5\%}$			0.11			1.16			0.97			1.80			
Fert x Variety															
CV (%)			0.12			16.26			6.87			10.75			

Table 22. Yield of maize variety (Ton/ha) on location in different districts when grown at 2 fertlizer levels.

(a) Iganga

	Baitambogwe			Ikulwe			Bukholi			Busiro			Combined		
	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean
NZ1	4.92	4.57	4.75	4.82	5.44	5.13	3.34	2.18	2.76	4.12	3.81	3.97	4.30	4.00	4.15
NZ2	5.46	5.72	5.55	5.02	5.04	5.03	3.36	3.36	3.50	4.82	4.08	4.45	4.67	4.55	4.65
NZ3	5.30	5.46	5.38	5.07	4.72	4.90	3.19	2.39	2.79	3.30	2.41	2.86	4.22	3.75	3.99
H511	4.57	4.58	4.58	4.03	5.28	4.66	3.06	2.61	2.84	2.76	3.57	3.65	3.61	4.01	3.81
Longe 1	4.53	4.32	4.43	5.11	4.35	4.73	3.06	3.75	3.41	2.82	3.37	3.10	3.88	3.95	3.92
Mean	**4.96**	**4.93**	**4.94**	**4.81**	**4.97**	**4.89**	**3.20**	**2.90**	**3.06**	**3.56**	**3.45**	**3.55**	**4.14**	**4.09**	**4.12**
$LSD_{0.05}$ Variety			**1.06**			**1.39**						**0.9**			**0.64**
$LSD_{0.05}$ Variety x Fertilizers			**1.30**			**1.02**						**0.64**			
CV(%)			**9.54%**			**17.06%**						**18.54%**			**12.99**

Table 22 Yield of maize variety (Tuxpeño) on location in different agricultural years as a higher levels

(a) Bags

(b) Mbale district

	Bukhalu			Buyaga			Muyembe			Mbale Central			Combined		
Variety	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean
NZ1	7.02	7.38	7.20	6.95	7.86	7.41	6.56	7.74	7.02	3.94	4.52	4.23	6.12	6.88	6.50
NZ2	5.16	5.07	5.12	6.23	6.84	6.54	5.24	7.02	6.13	3.05	4.53	3.79	4.92	5.87	5.40
NZ3	5.68	7.73	6.71	6.24	9.09	7.65	5.42	7.20	6.31	3.25	3.88	3.57	5.15	6.98	6.07
H511	3.91	4.09	4.00	3.46	4.52	3.99	4.89.	4.62	4.76	2.94	4.25	3.60	3.80	4.37	4.09
Longe1	5.60	5.76	5.68	5.13	4.66	4.90	4.62	4.00	4.31	3.52	4.68	4.10	4.72	4.78	4.75
Mean	**5.47**	**6.01**	**5.74**	**5.60**	**6.59**	**6.10**	**5.35**	**6.06**	**5.71**	**3.34**	**4.37**	**3.86**	**4.54**	**5.76**	**5.15**
$LDS_{0.05}$ Vareity			**1.41**			**1.58**			**1.72**			**0.84**			**1.29**
$LSD_{0.05}$ Variety x fertlizer			**1.09**			**1.24**			**0.89**			**0.79**			**0.836**
CV (%)			**14.21**			**7.58**			**14.32**			**19.43**			**9.87**

(b) Mbale district

Variety	Bukhalu			Ituruga			Nyenabe			Mbale Central			Combined		
	-1 cut	+1 cut	Mean	-1 cut	+1 cut	Mean	-1 cut	+1 cut	Mean	-1 cut	+1 cut	Mean	-1 cut	+1 cut	Mean
NZ1	7.07	7.48	7.20	6.95	7.86	7.41	6.56	7.74	7.02	4.92	6.94	4.23	6.12	6.88	6.50
NZ2	5.16	5.07	5.12	6.25	6.84	6.54	5.71	7.02	6.15	4.51	7.09	4.79	5.27	6.96	5.40
NZ3	5.68	7.73	6.71	6.24	9.09	7.65	5.42	7.20	6.31	3.75	7.85	4.57	4.15	6.08	4.87
HS11	3.91	4.09	4.00	4.16	4.52	4.34	4.02	4.76	4.29	2.94	4.25	3.60	3.80	4.37	4.09
Longe1	5.60	5.76	5.68	5.15	4.66	4.90	4.62	4.09	4.31	3.52	4.68	4.10	4.72	4.78	4.75
Mean	5.47	6.01	5.74	5.60	6.59	6.10	5.45	6.06	5.71	3.94	4.37	3.86	4.54	5.26	5.15
LDS$_{0.05}$ Variety			1.31			1.58			1.72			0.84			1.29
LSD$_{0.05}$ Variety x fertilizer			1.09			1.24			0.89			0.79			0.856
C.V (%)			14.21			7.58			11.31			19.43			9.87

(C) Masindi district

	Rwabigaragara			Kigumba I			Kaduku			Kigumba II			Combined		
Variety	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-FErt	+Fert	Mean	-Fert	+Fert	Mean
NZ1	5.17	4.87	5.02	4.80	5.70	5.25	3.90	4.02	3.96	4.17	4.43	4.30	4.51	4.76	4.64
NZ2	4.05	4.76	4.41	4.33	7.48	5.92	3.59	4.71	4.15	4.74	4.51	4.63	4.18	5.37	4.78
NZ3	4.64	5.57	5.11	6.72	7.01	6.87	3.21	3.10	3.16	3.57	3.86	3.72	4.54	4.89	4.72
H511	3.61	4.15	3.48	5.16	4.95	5.07	4.07	4.28	4.18	2.98	3.09	3.04	3.76	4.12	3.94
Longe1	3.08	3.42	3.25	5.49	5.22	5.36	3.82	3.02	3.42	2.92	2.88	2.90	3.83	3.64	3.74
Mean	**3.95**	**4.55**	**4.25**	**5.31**	**6.07**	**5.69**	**3.72**	**3.83**	**3.77**	**3.68**	**3.75**	**3.72**	**4.17**	**4.55**	**4.36**
LSD($_{0.05}$) variety			**1.48**			**0.40**			**0.68**			**1.23**			**1.01**
LSD($_{0.05}$) Variety x fertilizer			**1.02**			**1.24**			**0.43**			**1.14**			**0.96**
CV (%)			**20.38**			**18.42**			**24.17**			**15.74**			**14.49**

(C) Nasinde district

Variety	Rwebigarangara			Kiguruka I			Kabuki			Kiguruka II			Combined		
	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean
NZ1	5.17	4.87	5.02	4.80	5.70	5.25	3.90	4.02	3.96	4.17	4.43	4.30	4.51	4.76	4.64
NZ2	4.05	4.70	4.11	4.32	5.18	4.92	4.29	4.71	4.15	4.71	5.11	4.63	4.18	4.79	4.78
NZ3	4.64	4.52	4.11	4.32	5.01	4.67	3.31	3.10	3.15	3.57	3.86	3.72	3.94	4.89	4.42
H511	3.61	4.15	3.48	4.16	4.95	4.07	4.07	4.28	4.18	2.98	3.09	3.04	3.76	4.12	3.94
Longe1	3.08	3.42	3.25	4.49	5.22	4.76	3.76	3.82	3.02	3.12	2.67	2.89	3.43	3.83	3.64
Mean	4.05	4.55	4.25	4.31	5.07	4.69	3.72	3.84	3.77	3.68	3.79	3.72	4.17	4.55	4.36
LSD(0.05) variety			1.18			0.40			0.68			1.23			1.01
LSD(0.05) Variety x fertilizer			1.02			1.24			0.43			1.14			0.96
CV (%)			20.38			18.42			24.17			15.74			14.49

(d) Mubende district.

	Mityana			Mubende			Combined		
	-Fert	+Fert	Mean	-Fert	+Fert	Mean	-Fert	+Fert	Mean
NZ1	7.12	7.22	7.17	4.28	4.25	4.27	5.70	5.74	5.72
NZ2	4.93	6.40	5.67	3.40	3.87	3.64	4.17	5.14	4.66
NZ3	4.52	6.71	5.62	4.60	4.09	4.35	4.56	5.40	4.98
H511	4.39	5.58	4.99	2.10	2.31	2.21	3.25	3.95	3.60
Longe 1	3.66	6.03	4.85	2.78	3.75	3.27	3.22	4.89	4.06
Mean	**4.92**	**6.39**	**5.66**	**3.43**	**3.65**	**3.55**	**4.18**	**5.02**	**4.61**
$LSD_{(0.05)}$ variety			**1.81**			**1.62**			**1.43**
$LSD_{(0.05)}$ Variety x fertilizer			**3.93**			**0.85**			**1.64**
CV (%)			16.30			8.65			10.75

Table 23. Farmers perceptions on 3 maize varieties

Variety	Ranking	Reasons given	District/farmers.
NZ 2	1	- large cobs - Most plants give 2 cobs - Cob file to the tip - Appealing plant architecture	Mubende 28/37 Masaka 33/48 Mbale 30/46 Iganga 17/24 Masindi 18/21
Longe 1	2	- Earliness - Tolerant drought - White flour - Compact cobs - Heavier grains	Mubende 23/37 Masaka 30/48 Mbale 21/46 Iganga 20/24 Masindi 19/21
NZ 3	2	- large cobs - Good flint(texture) - Large seeded - Cob fills to the tip - Good taste (boiled or roasted)	Mubende 25/37 Masaka 31/37 Mbale 35/46 Iganga 21/24 Masindi 15/21

Table 24. Descriptive data of 16 advanced inbreds and 3 hybrids

Entry	Plant ht.	Ear ht.	Pollen shed	Days to flowering	Ear aspect	Grain texture	Husk cover	MSV	GLS	NLB	**Head smut ***	**Stunt virus ***	Ear rot	**Fusarium**	Grain yield
	---- cm ---		--------	d --------	----------	----------	score 1-5	----------	----------	----------	% smutted	% infected	% rotten	% infected	kg/ha
CML 202	171	85	71	74	3.0	2.0	1.0	1.94	2.0	1.0	65	10.7	1.3	3.6	2200
CML 204	185	90	69	75	4.0	3.5	1.5	1.72	5.0	1.5	11	40.0	3.0	33.3	1078
CML 206	171	74	69	75	3.5	1.5	2.0	2.10	3.5	4.0	77	2.6	2.0	7.6	2360
CML 216	181	95	69	73	4.0	1.0	2.0	1.89	2.3	1.8	82	2.9	0.0	29.0	2510
Nam-96L-1	183	90	76	74	3.5	2.0	2.0	1.50	2.0	1.5	-	-	6.8	-	2410
Nam-96L-2	212	108	69	73	3.5	2.0	3.0	1.50	2.6	1.8	-	-	0.0	-	2390
Nam-96L-3	213	118	76	76	3.0	2.5	3.0	1.66	1.5	1.0	-	-	0.0	-	1867
NZ1	**257**	**142**	**67**	**68**	**3.0**	**2.0**	**2.0**	**1.56**	**2.0T**	**1.5**	-	-	**0.1**	-	**7011**
NZ2	**237**	**116**	**65**	**68**	**2.0**	**2.0**	**2.2**	**2.00**	**2.0T**	**2.0**	-	-	**0.0**	-	**8835**
NZ3	**233**	**114**	**69**	**70**	**2.5**	**2.0**	**2.0**	**1.80**	**2.0T**	**1.5**	-	-	**0.0**	-	**8361**
Nam-97L-1	79	182	68	72	2.1	1.5	-	2.40	2.1	2.3	62	-	1.6	-	
Nam-97L-2	80	178	82	83	2.2	1.8	-	1.00	2.5	2.0	33	-	2.0	-	
Nam-97L-3	86	208	84	86	2.3	1.9	-	1.40	2.0	2.5	79	-	1.0	-	
Nam-97L-4	76	212	74	77	2.2	1.9	-	1.43	2.0	2.2	43	-	2.3	-	
Nam-97L-5	75	193	74	78	3.5	2.0	-	1.10	1.5	2.0	69	-	2.0	-	
Nam-97L-6	83	200	82	84	2.5	1.8	-	1.12	1.8	2.8	38	-	1.5	-	
Nam-97L-7	79	187	69	72	2.1	3.0	-	2.47	1.5	2.5	32	-	1.0	-	
Nam-97L-8	77	202	64	68	2.5	1.8	-	1.22	2.2	2.2	38	-	1.3	-	
Nam-97L-9	80	196	68	72	2.3	3.2		2.60	2.8	3.0	14	-	0.0	-	

* Data obtained through collaborative work with CIMMYT

Fig.1. Overall performance yield performance of 9 varieties across 4 locations and 2 seasons (1997A&B).

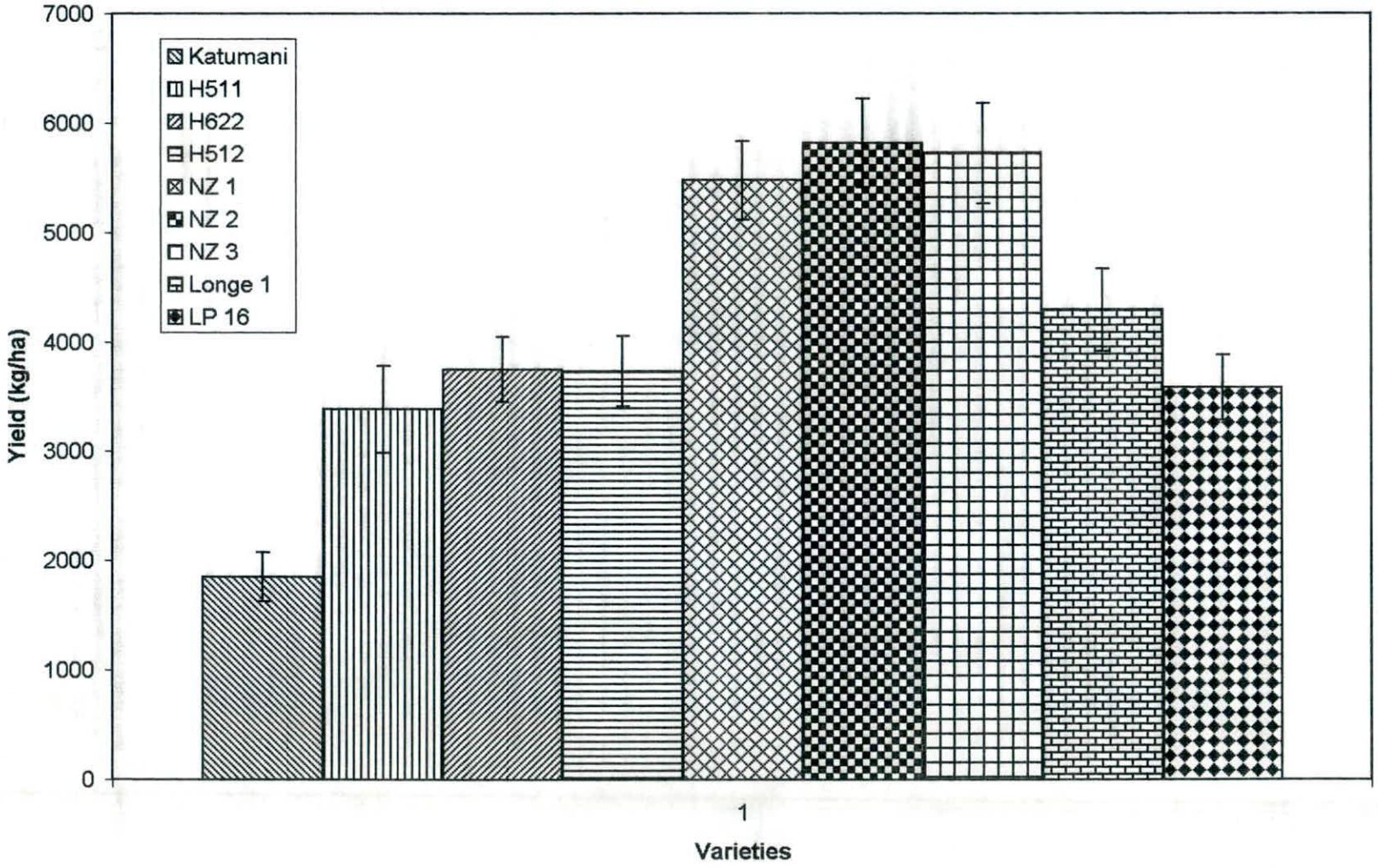
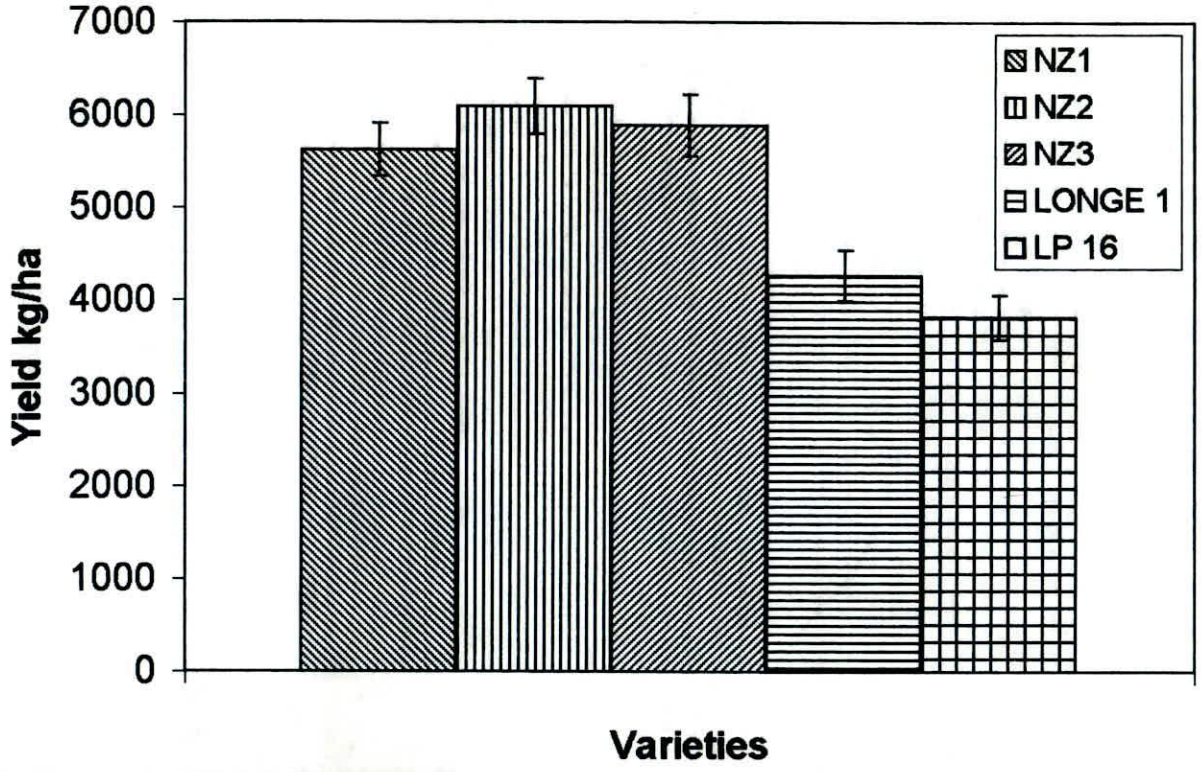


Fig. 2 Yield of five varieties across locations (4) and seasons (96B, 97A &97B)



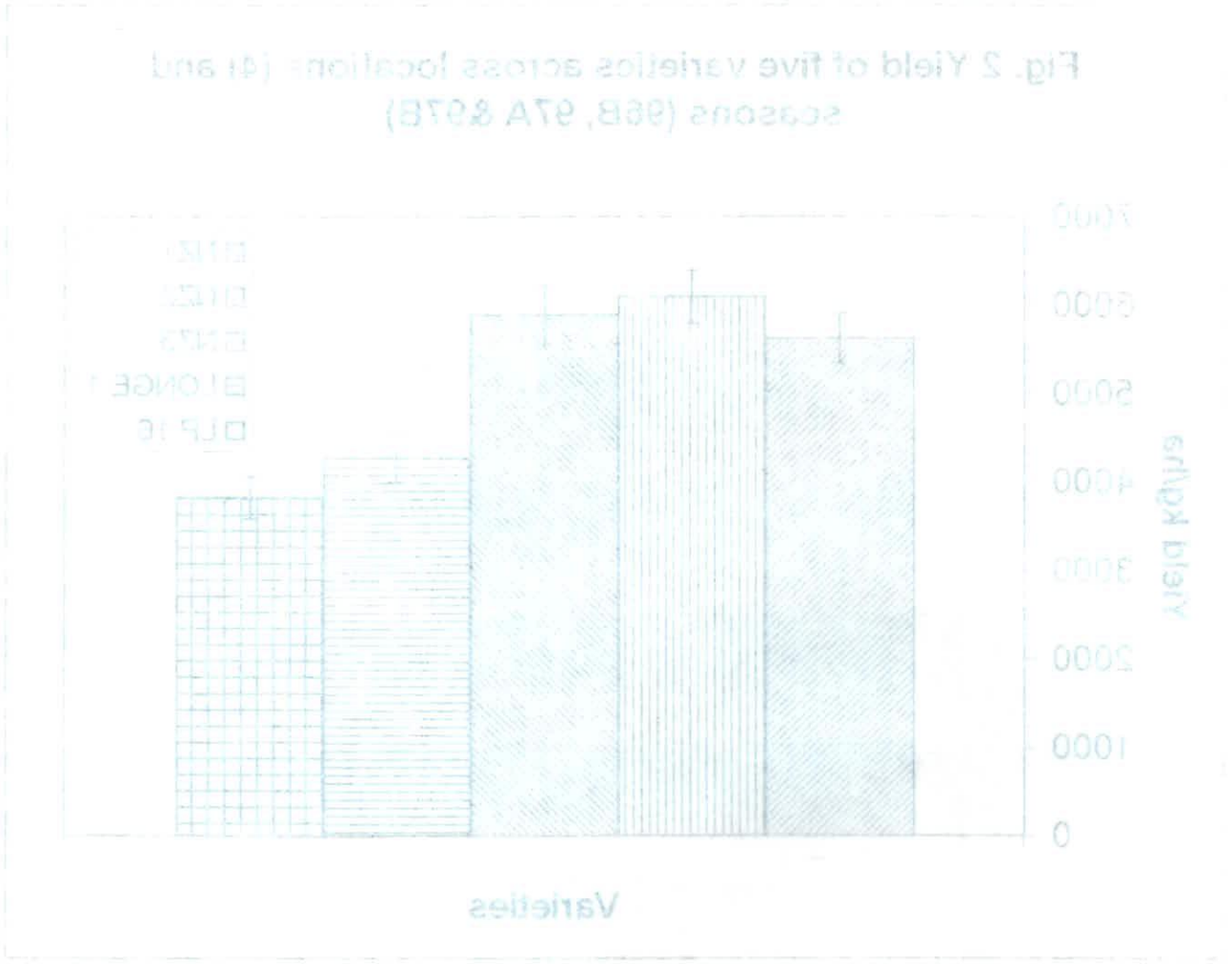


Fig. 3 Yield (kg/ha) of varieties tested 1996B, 1997A & 1997B across locations

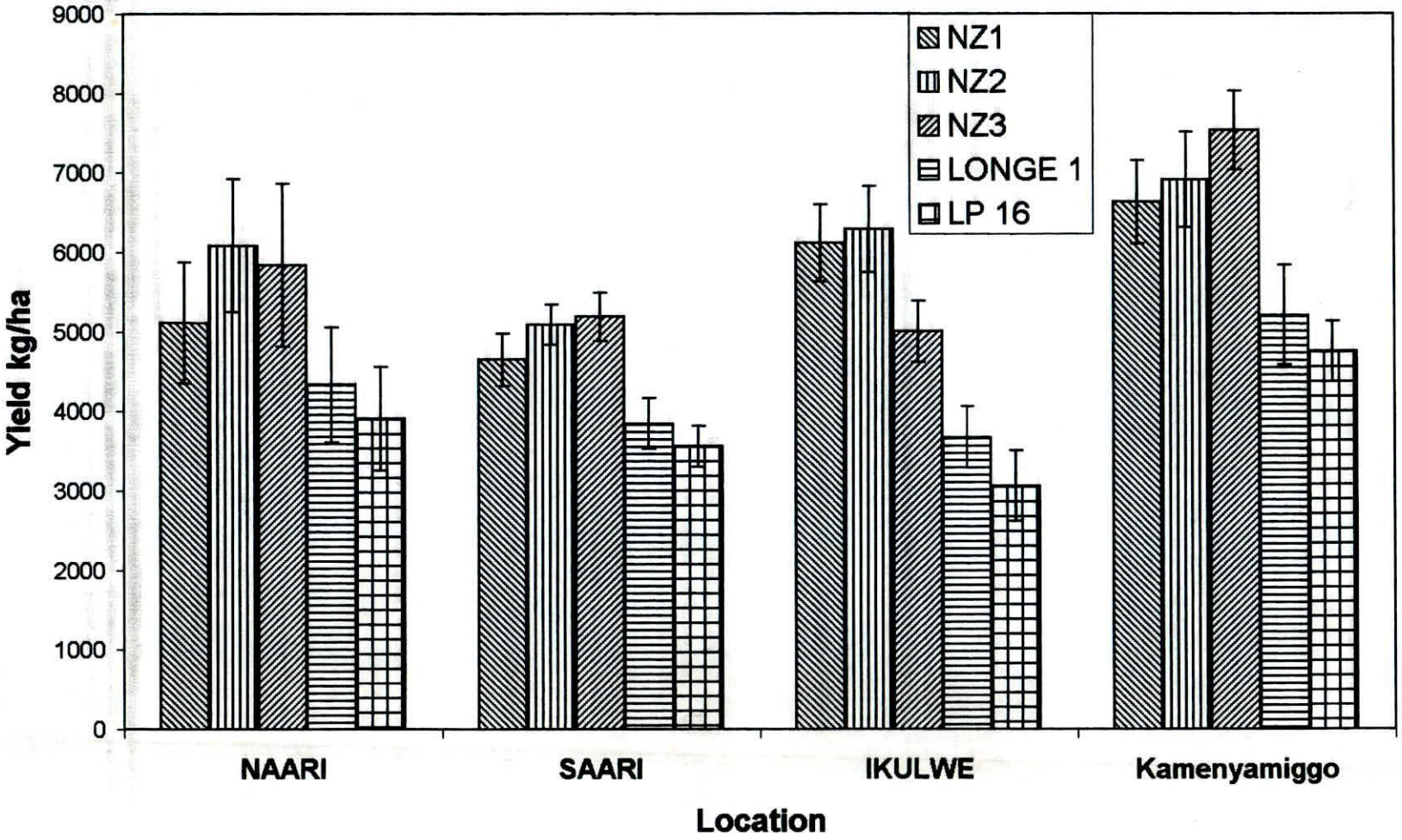


Fig. 4 Yield perfomance (kg/ha) of 9 varieties across 2 seasons 1997A & 1997B

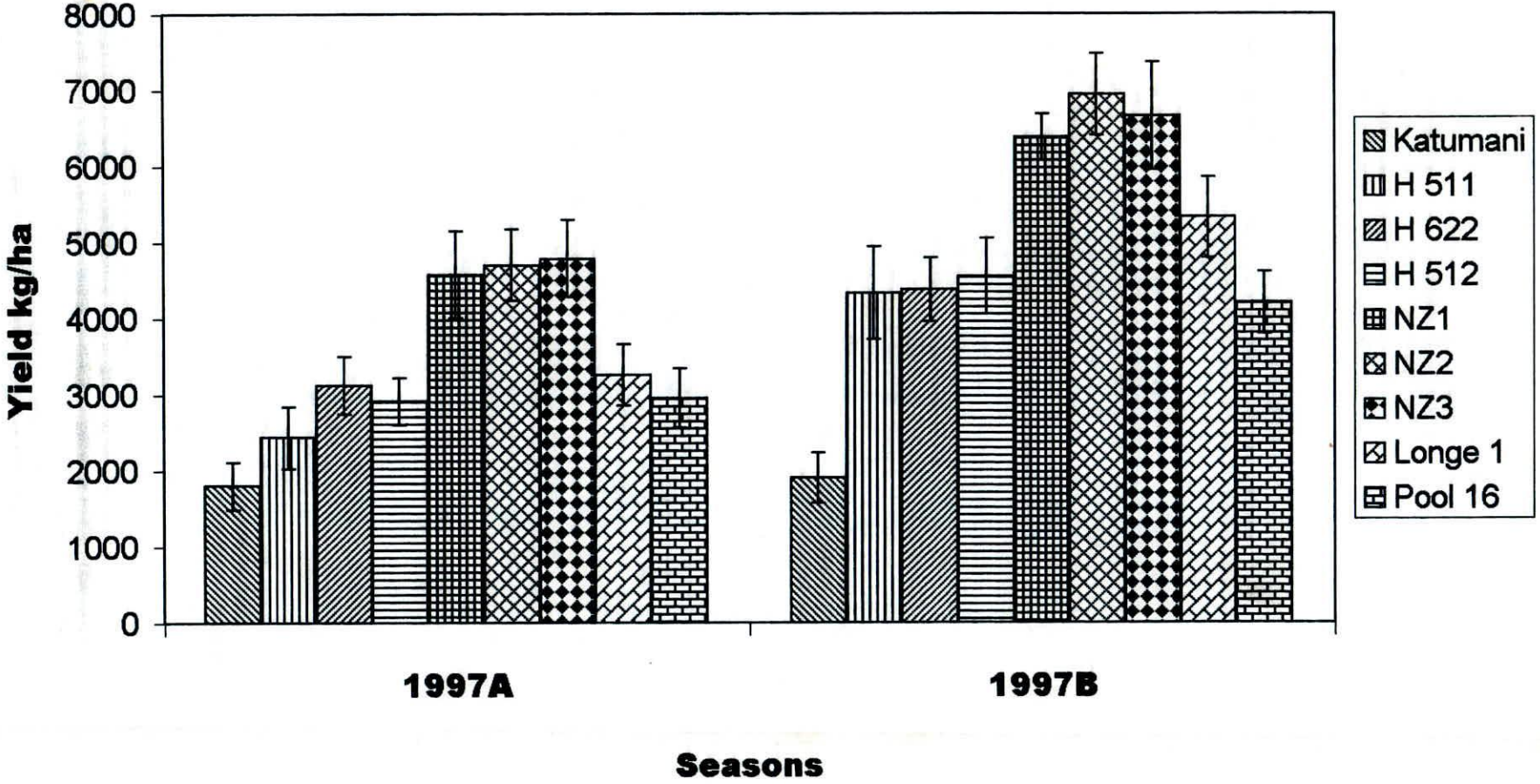
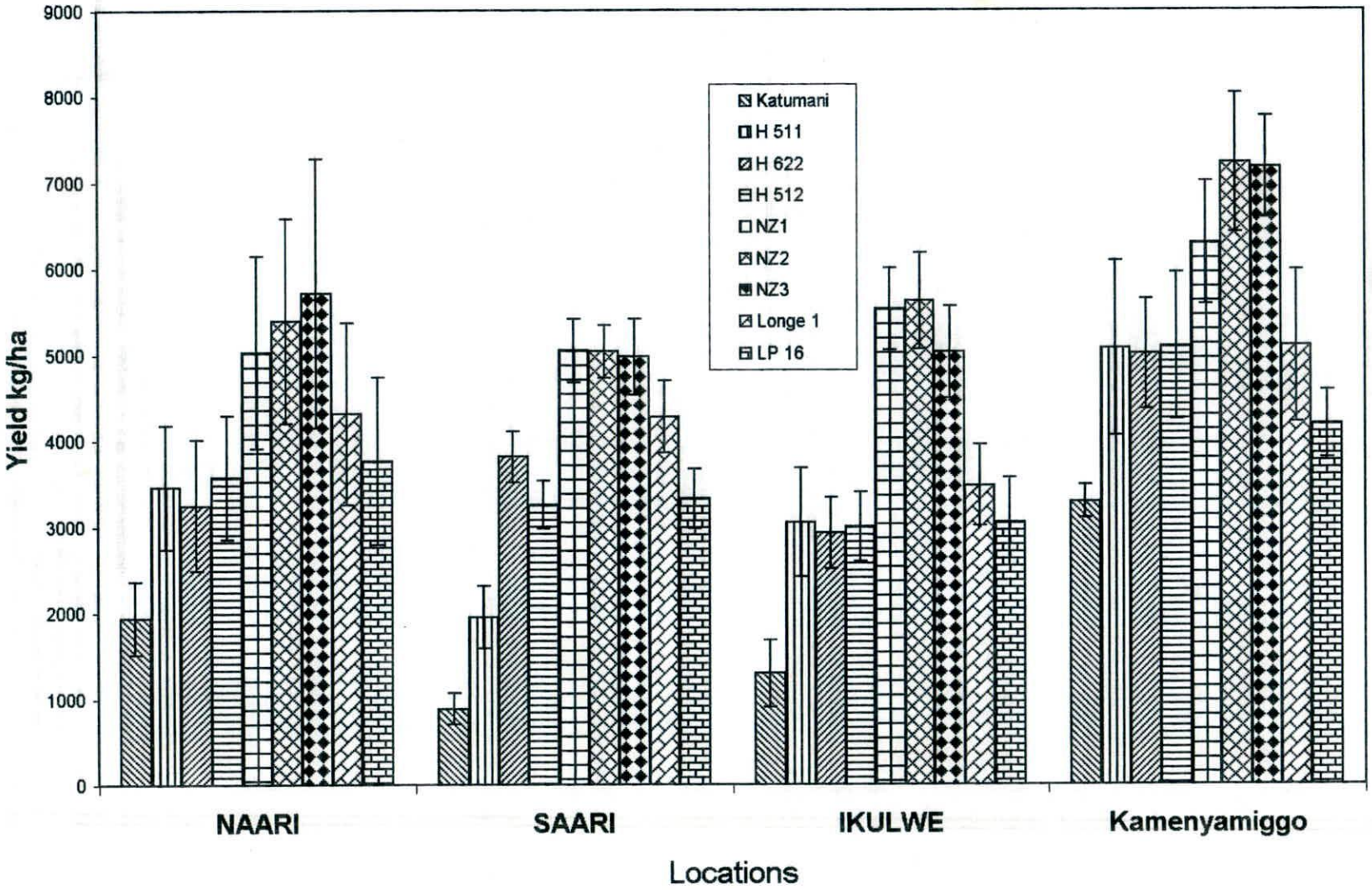


Fig. 5 Yield performance (kg/ha) of 9 varieties across 4 locations



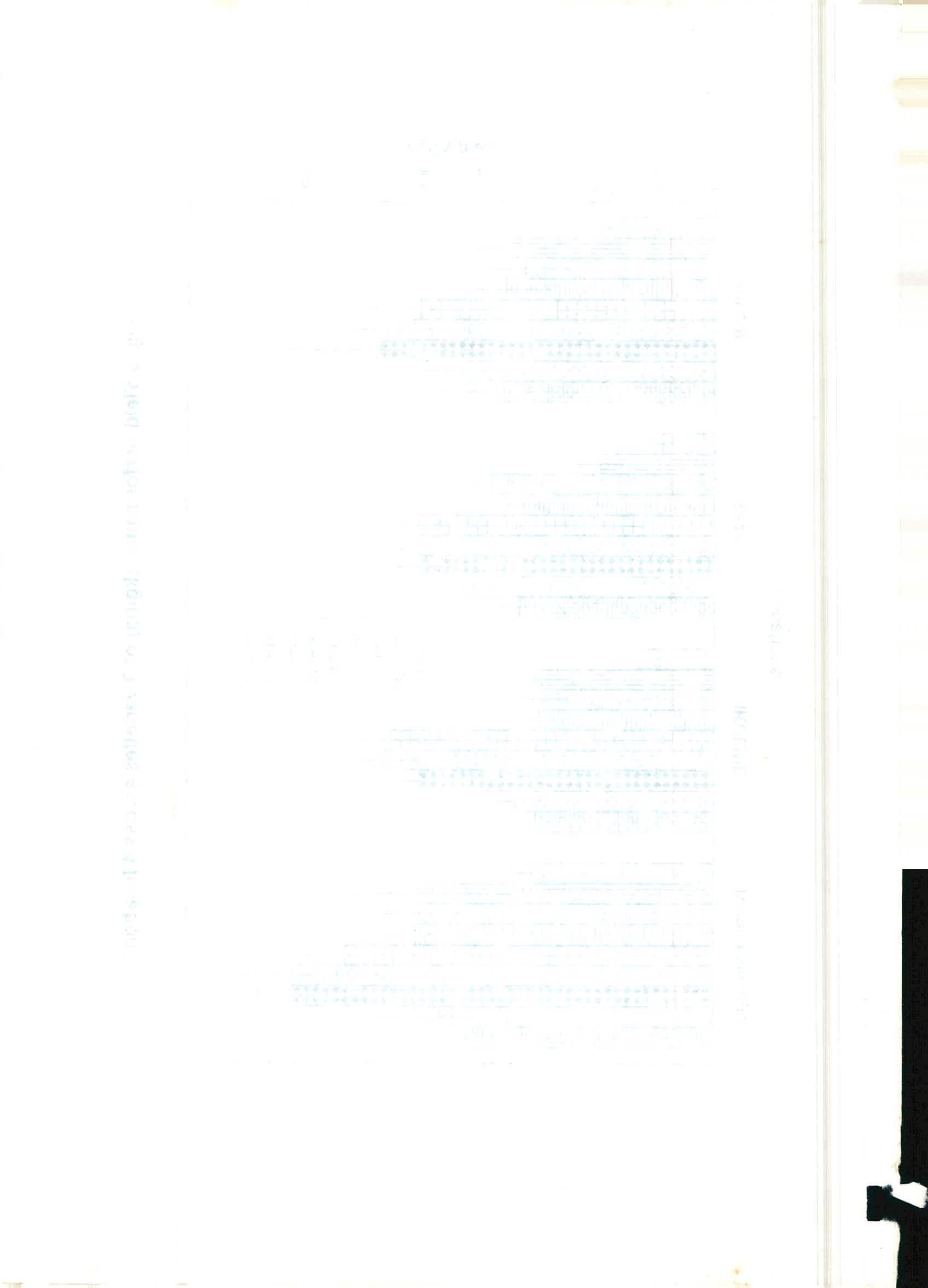


Fig. 6. Rainfall amounts (mm) at Ikulwe during the year 1996

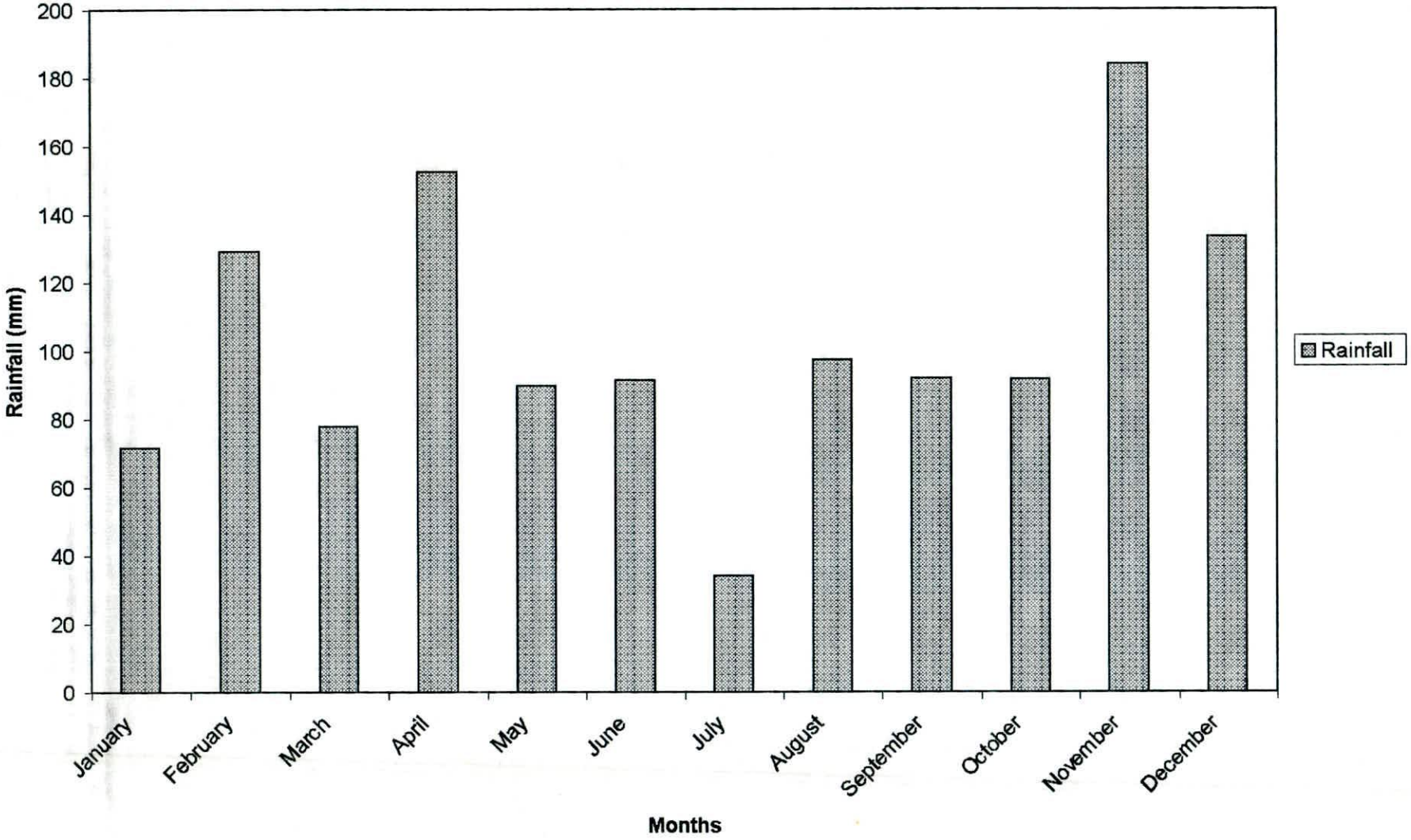


Fig. 7. Rainfall amounts (mm) at Ikulwe during the year 1997

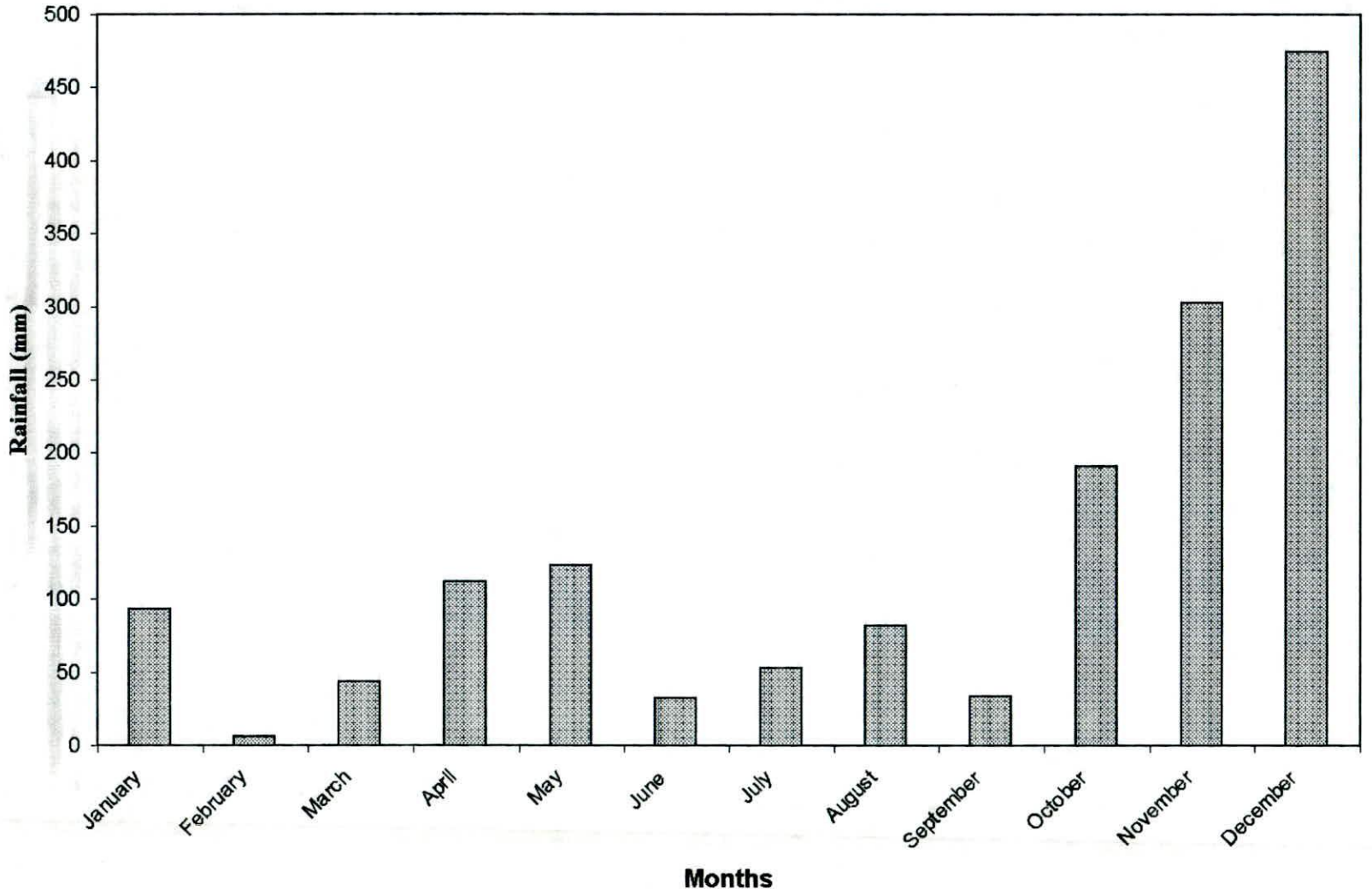


Fig. 8. Rainfall amounts (mm) for Kapchorwa during the year 1997

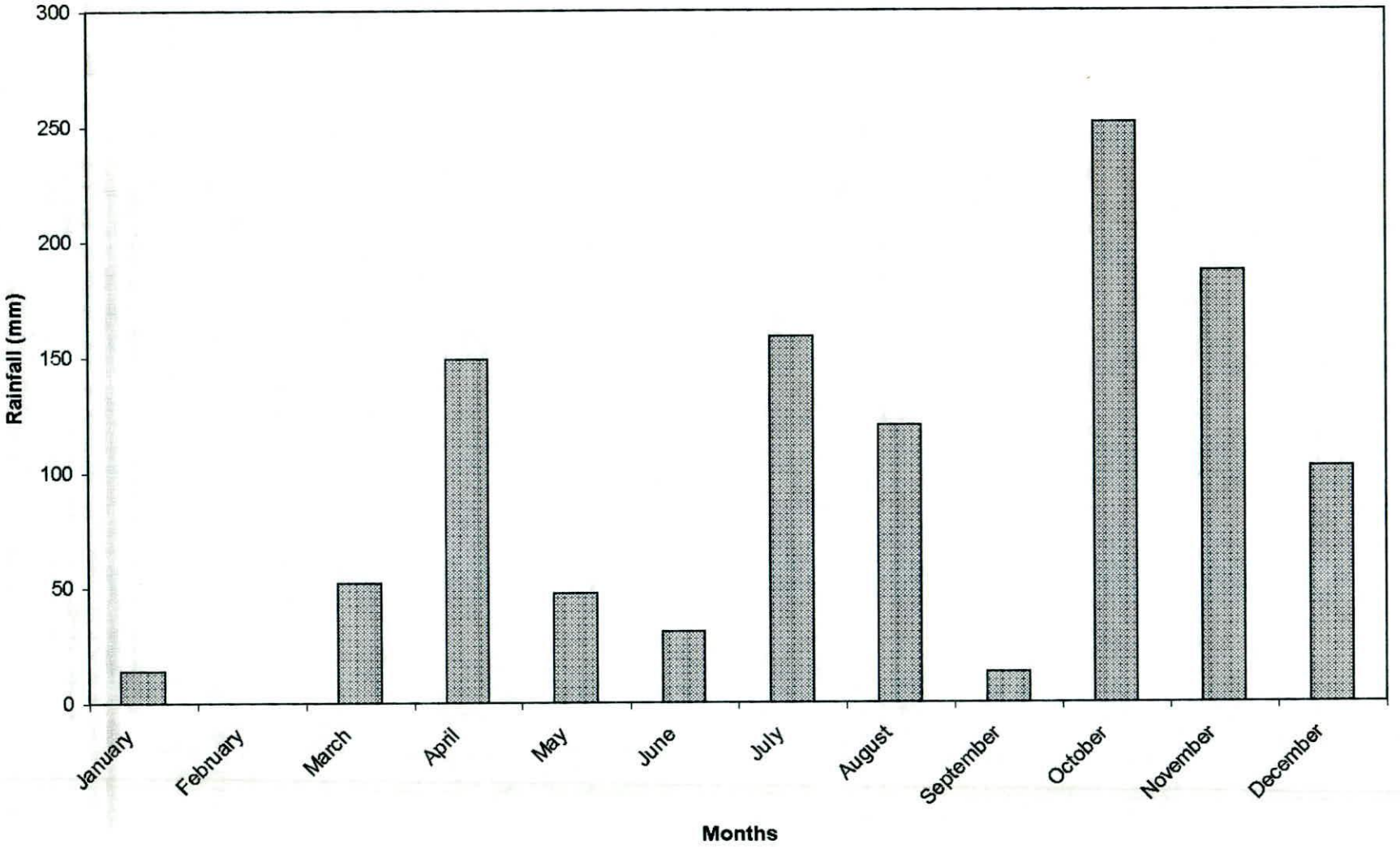


Fig. 9. Rainfall amounts for 1996 at Kamenyamiggo

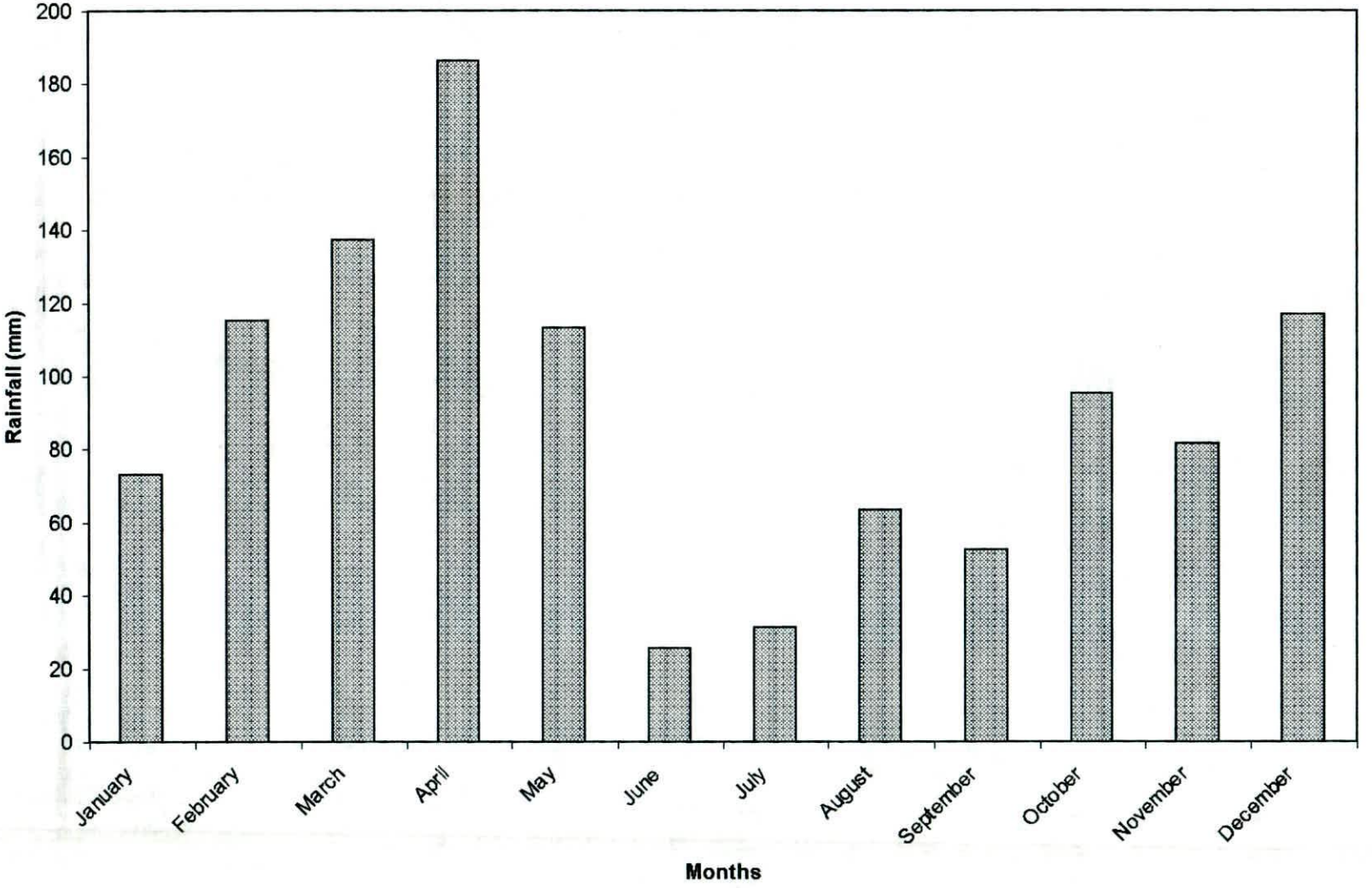


Fig. 10. Rainfall amount for 1997 at Kamenyamiggo

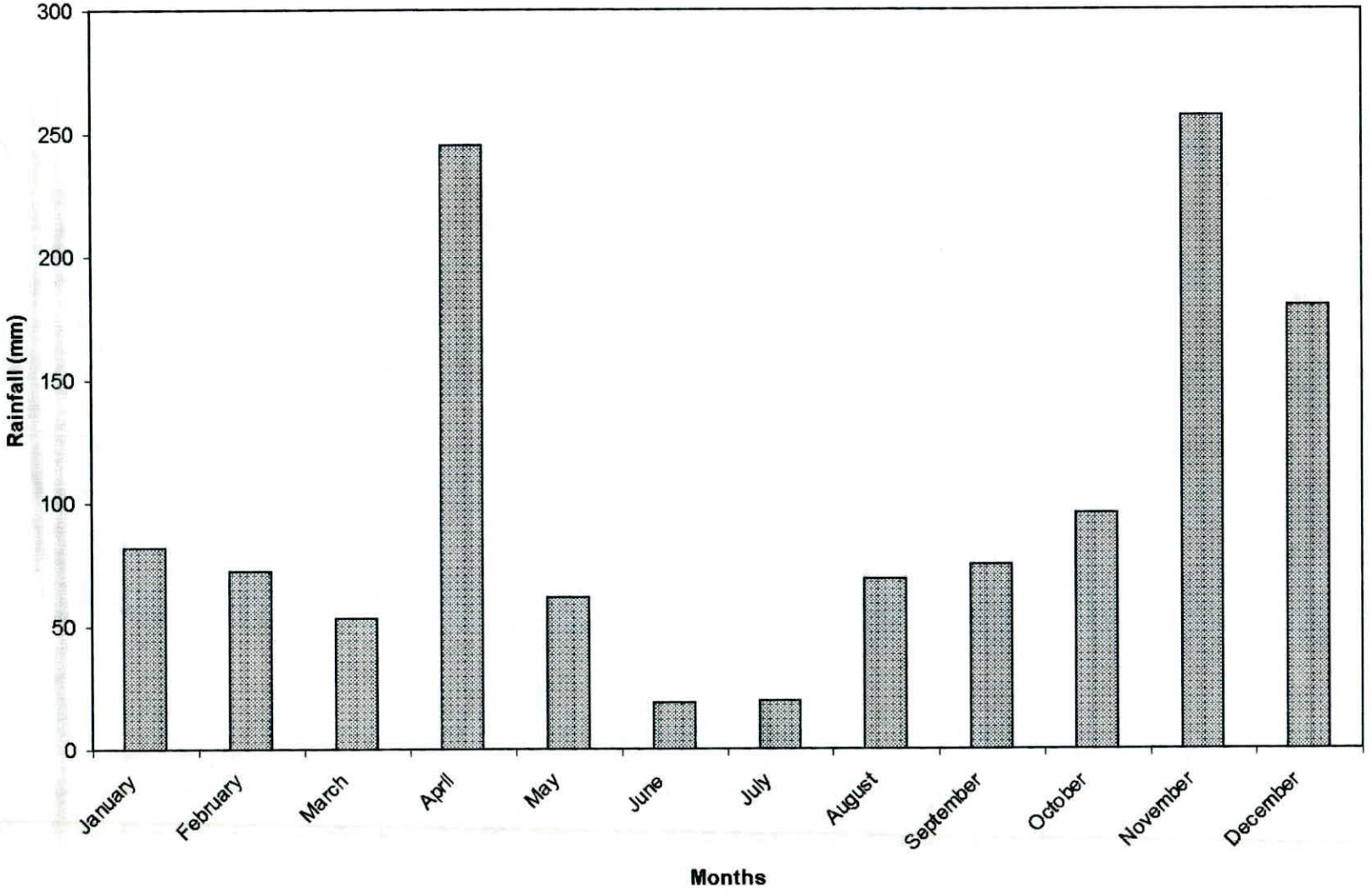


Fig. 11 Rainfall amount for 1996 at Namulonge

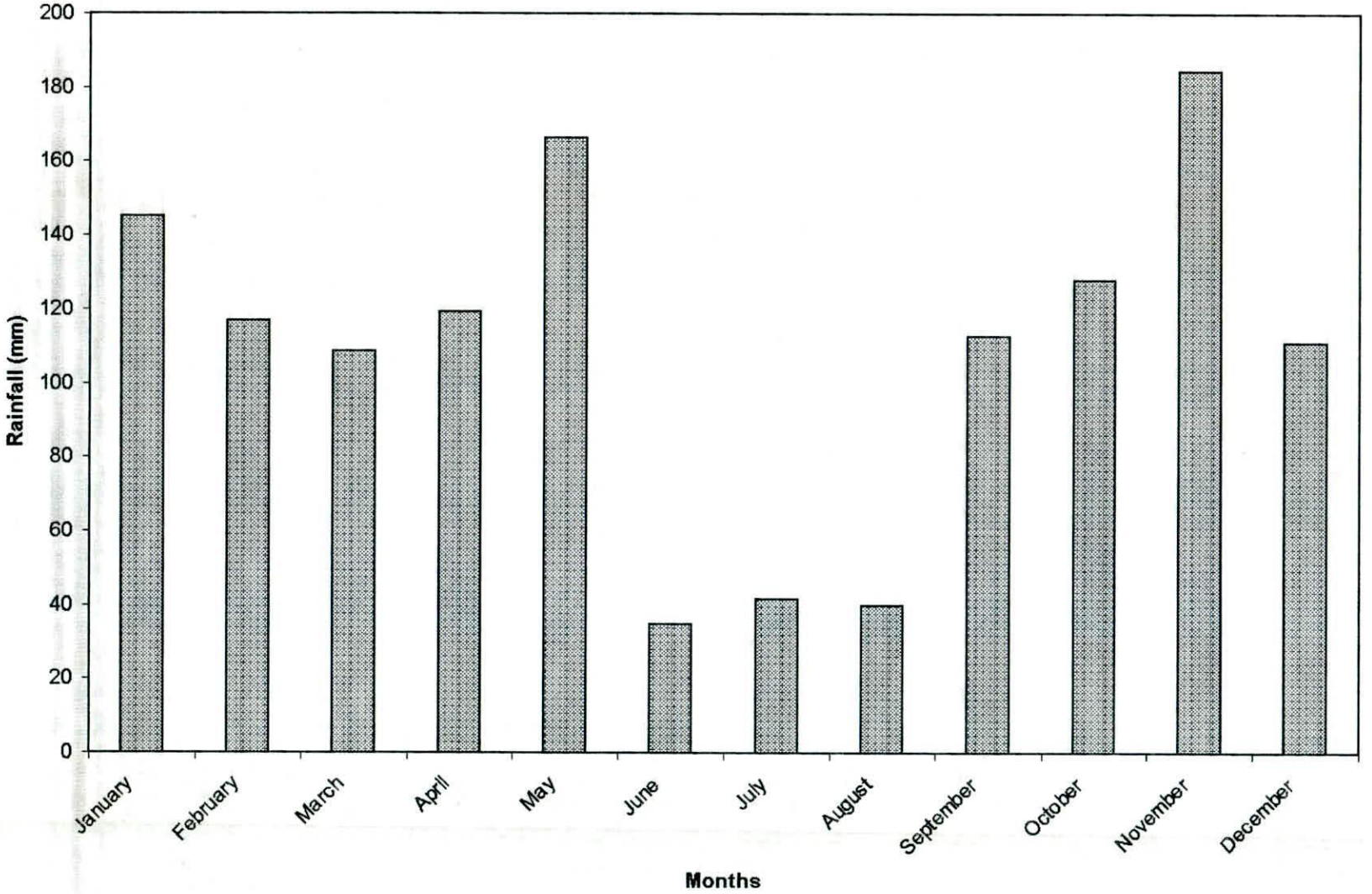


Fig. 12 Rainfall amount for 1997 at Namulonge

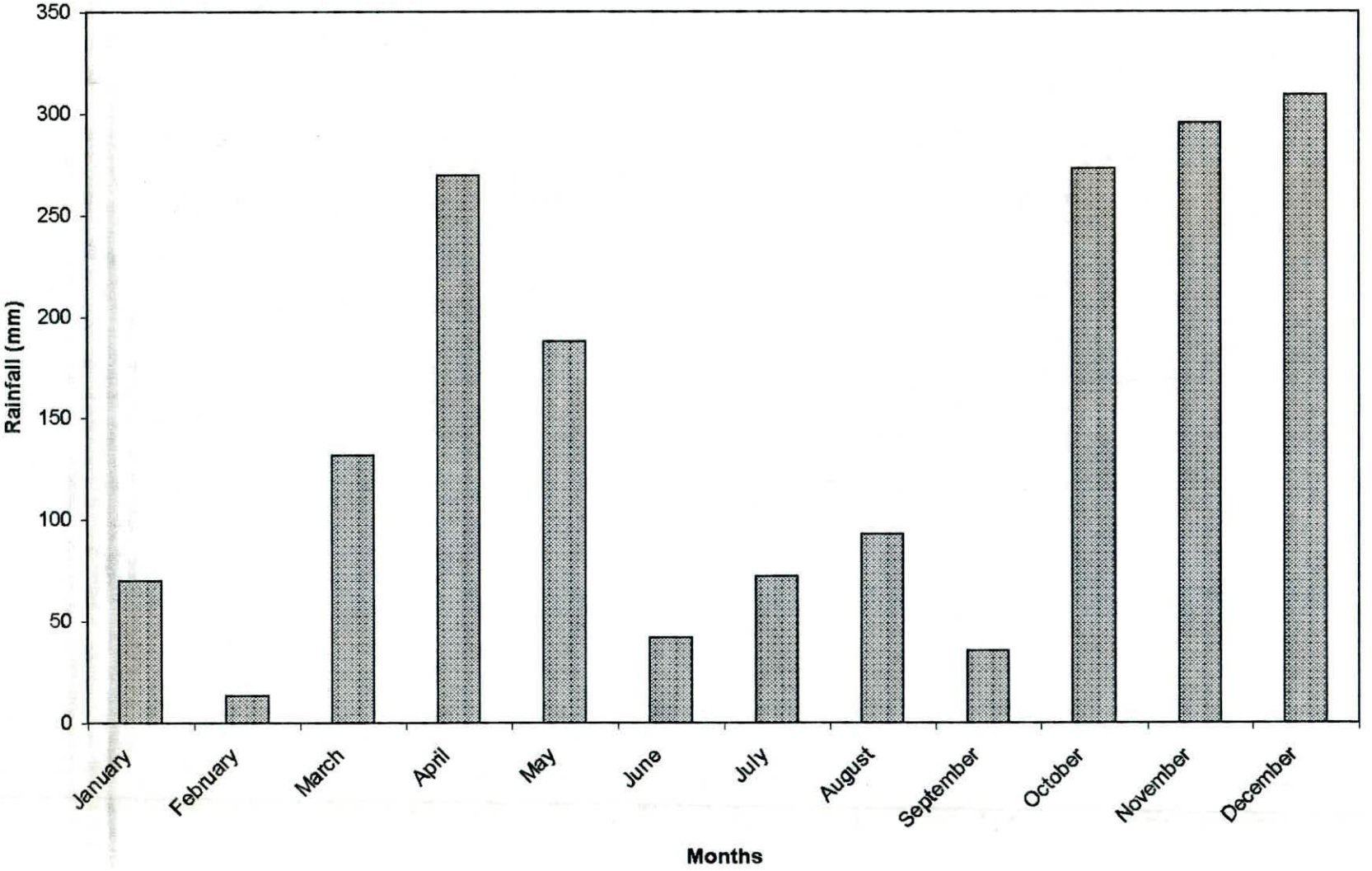


Fig. 13. Stability character of NZ 2 and NZ 3 versus Longe 1 during 1996B, 1997A and 1997B in 4 locations.

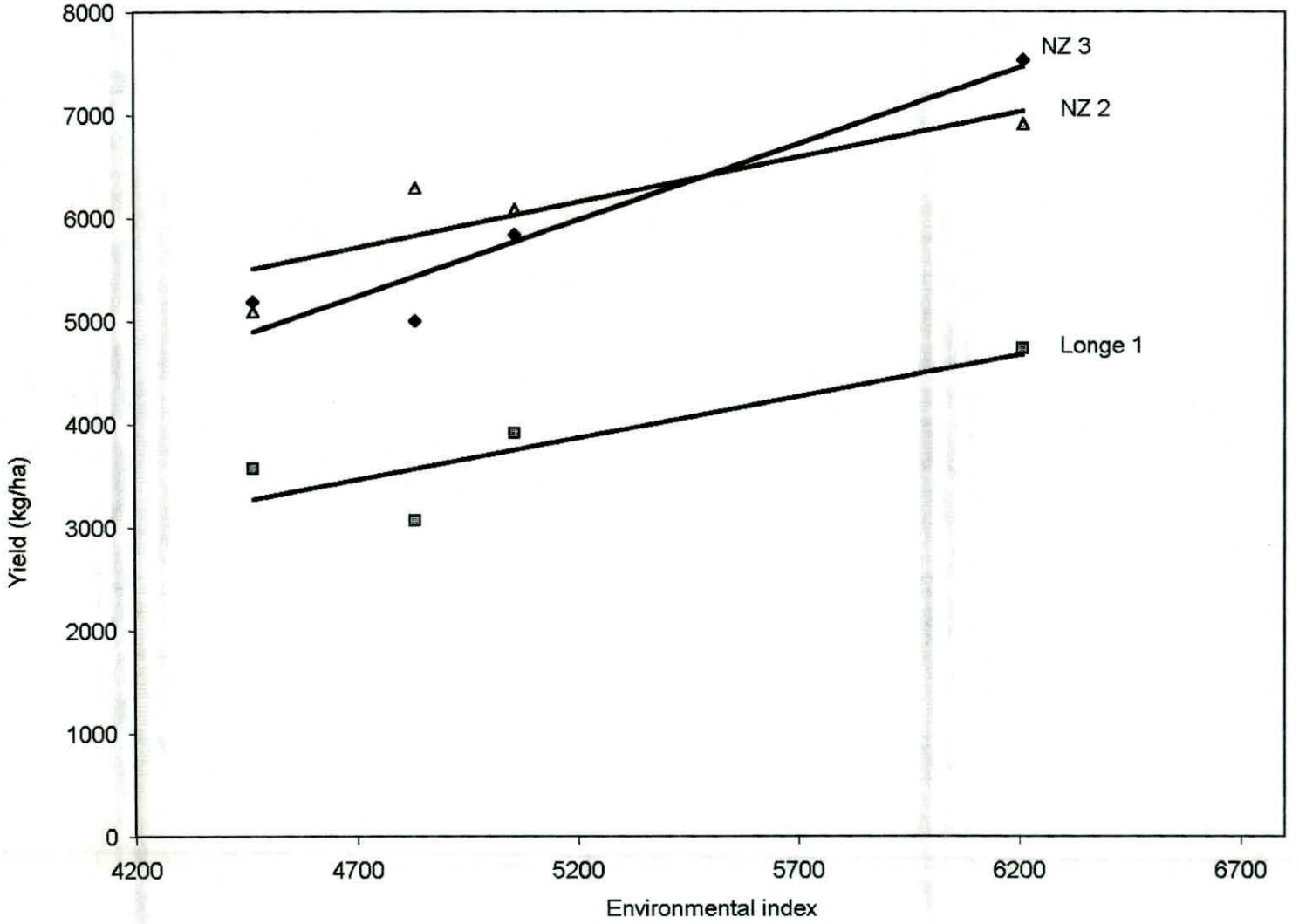


Fig. 14. Stability character of NZ 2, NZ 3 and Longe 1 versus H511 and H512 during 1997A&B in 4 locations.