

## CHAPTER IV

### RESULTS

The study on growth of three sugarcane cultivars, i.e. K 90-112 ( $V_1$ ), K 86-161 ( $V_2$ ) and Phil 66-07 ( $V_3$ ) as influenced by four different levels of phosphorus fertilizer i.e. 0 ( $P_0$ ), 11.6 ( $P_1$ ), 16.1 ( $P_2$ ) and 20.7 ( $P_3$ ) kg of  $P_2O_5$ /rai showed results as following:-

#### 1. Dry Matter

Dry matter yields of sugarcane were significantly different among 3 cultivars in all sampling dates. Phil 66-07 had the highest dry matter yield at every sampling date while K 90-112 gave the lowest dry matter yield.

Rate of phosphorus application also had significant effect on dry matter yield of sugarcane. Sugarcane dry matter yield increased with increasing rates of applied phosphorus.

Interactions between sugarcane cultivars and rates of applied phosphorus on dry matter production were significant at all sampling dates, indicating that the three sugarcane cultivars responded differently to the rates of applied phosphorus.

In general, no phosphorus application ( $P_0$ ) gave the lowest yields in all cultivars at all sampling dates. However, the phosphorus rates that gave the highest yield were different among cultivars. In K 90-112 and Phil 66-07, the highest rate of phosphorus application (45 kg TSP per rai,  $P_3$ ) gave the highest dry matter yields at all sampling dates. However in K 86-161, the highest dry matter yields were attained with phosphorus application at the medium rate of 35 kg TSP per rai ( $P_2$ ) with the exception at three and four months after planting where the highest rate of phosphorus ( $P_3$ ) gave the highest dry matter yield. It was observed that Phil 66-07 had higher dry matter yield and responded better to phosphorus rates than K 86-161 and K 90-112, respectively (Table2).

**Table 2** Effect of phosphorus application on dry matter production in three sugarcane cultivars (g / stool) (See analysis of variance in Appendix 3)

Treatment	Cultivars	TSP (kg/rai)	Months after planting							
			3	4	5	6	7	8	9	10
V1	K 90-112		162	271	415	547	661	785	934	1,108
V2	K 86-161		164	275	459	618	763	921	1,094	1,295
V3	Phil 66-07		201	323	516	695	856	1,022	1,208	1,418
	LSD (0.05)		31.2	32.2	75.9	63.7	82.3	90.6	117.6	175.5
P0		0	75	133	244	341	415	510	637	803
P1		25	217	332	516	678	833	997	1,178	1,372
P2		35	199	333	525	701	857	1,014	1,190	1,395
P3		45	211	360	569	760	936	1,115	1,312	1,524
	LSD (0.05)		35.9	37.2	87.7	73.6	94.9	104.6	135.8	202.7
T1	K 90-112	0	92	156	263	369	439	527	656	833
T2	K 90-112	25	206	290	427	547	660	783	928	1,087
T3	K 90-112	35	170	308	447	583	695	814	963	1,141
T4	K 90-112	45	182	330	521	690	851	1,014	1,190	1,372
T5	K 86-161	0	61	112	226	318	392	490	612	758
T6	K 86-161	25	202	324	516	663	810	977	1,151	1,348
T7	K 86-161	35	190	320	564	775	972	1,169	1,375	1,631
T8	K 86-161	45	203	346	532	718	878	1,047	1,240	1,441
T9	Phil 66-07	0	73	133	242	337	413	514	642	818
T10	Phil 66-07	25	244	384	605	825	1,028	1,232	1,454	1,680
T11	Phil 66-07	35	237	371	564	746	903	1,058	1,231	1,415
T12	Phil 66-07	45	248	404	653	874	1,079	1,283	1,506	1,759
	LSD (0.05)		62.3	64.4	151.9	127.5	164.5	181.2	235.2	351.1
	C.V. (%)		24.65	15.45	22.78	14.28	15.03	13.84	15.15	19.15

## 2. Crop Growth Rate

As shown in Table 3, crop growth rates of the three sugarcane cultivars were not different in all sampling dates. However it was observed that Phil 66-07 had a tendency to give the highest crop growth rate in all sampling dates and followed by K 86-161 and K 90-112.

Rates of phosphorus application had no effect on crop growth rates of sugarcane cultivars, with the exception during the sampling periods of 3 – 4 and 5-6 months after planting when there were significant differences among the rates ( $P < 0.05$ ). Even though there were no difference in crop growth rates, sugarcane crop growth rates tended to increase with increasing rates of applied phosphorus.

Interaction between sugarcane cultivars and rates of applied phosphorus on crop growth rates was not significant at all sampling dates. However no phosphorus application ( $P_0$ ) had a tendency to give the lowest crop growth rate in most sampling date. With the highest rate of phosphorus application (45 kg TSP per rai,  $P_3$ ), K 90-112 and Phil 66-07 tended to have the highest crop growth rate. However in K 86-161 and at the rate of 35 kg TSP per rai ( $P_2$ ), the crop growth rate tended to be highest in all sampling dates, with the exception at 3 - 4 months after planting where the highest rate of phosphorus (45 kg TSP or  $P_3$ ) gave the highest crop growth rate.

## 3. Leaf Area Index

Leaf area index of three sugarcane cultivars treated with different rates of phosphorus application is shown in Table 4. Generally there was no difference in leaf area index among the three sugarcane cultivars at most sampling dates, except three and four months after planting. K 86-161 had the lowest leaf area index during the period of 3 – 7 months after planting. At 8 – 10 months after planting Phil 66-07 had the lowest leaf area index.

However, rate of phosphorus application had significant effect on leaf area index of sugarcane with the exception at 10 months after planting. Sugarcane leaf area index increased with increasing rates of applied phosphorus.

**Table 3** Effect of phosphorus application on crop growth rate in three sugarcane cultivars ( $\text{g/m}^2\text{month}$ ) (See analysis of variance in Appendix 4)

Treatment	Cultivars	TSP (kg/rai)	Period of growth						
			3-4	4-5	5-6	6-7	7-8	8-9	9-10
V1	K 90-112		167	221	204	176	189	230	268
V2	K 86-161		171	283	244	223	242	267	308
V3	Phil 66-07		188	297	276	247	256	287	322
	LSD (0.05)		ns	ns	ns	ns	ns	ns	ns
P0		0	90	170	150	114	147	194	256
P1		25	177	282	250	238	253	277	299
P2		35	207	295	271	240	241	271	317
P3		45	229	322	295	270	275	304	326
	LSD (0.05)		0.9	ns	129.9	ns	ns	ns	ns
T1	K 90-112	0	98	165	163	109	135	198	272
T2	K 90-112	25	130	210	186	174	189	222	245
T3	K 90-112	35	213	214	208	173	183	229	274
T4	K 90-112	45	227	295	259	248	250	272	280
T5	K 86-161	0	78	175	141	115	150	188	225
T6	K 86-161	25	188	295	227	226	256	268	303
T7	K 86-161	35	200	375	324	304	302	316	394
T8	K 86-161	45	219	287	286	247	260	296	310
T9	Phil 66-07	0	92	169	145	118	156	196	271
T10	Phil 66-07	25	214	340	338	313	314	341	347
T11	Phil 66-07	35	206	296	281	242	238	267	283
T12	Phil 66-07	45	240	384	340	316	315	343	389
	LSD (0.05)		ns	Ns	ns	ns	ns	ns	ns
	C.V. (%)		22.17	58.57	25.35	76.55	51.77	61.36	77.29

**Table 4** Effect of phosphorus application on leaf area index in three sugarcane cultivars (See analysis of variance in Appendix 5)

Treatment	Cultivars	TSP (kg/rai)	Months after planting							
			3	4	5	6	7	8	9	10
V1	K 90-112		1.3	1.9	2.0	1.9	2.1	2.4	2.4	3.0
V2	K 86-161		1.0	1.4	1.8	1.8	1.8	2.4	2.4	3.1
V3	Phil 66-07		1.3	1.6	2.0	2.1	2.0	2.2	2.3	2.7
LSD (0.05)			0.23	0.30	Ns	ns	ns	ns	ns	ns
P0		0	0.5	0.8	1.2	1.2	1.4	1.8	1.9	2.5
P1		25	1.4	1.9	2.2	2.0	2.1	2.5	2.5	3.0
P2		35	1.3	1.9	2.2	2.2	2.2	2.4	2.5	3.1
P3		45	1.5	2.1	2.3	2.2	2.2	2.5	2.6	3.1
LSD (0.05)			0.26	0.34	0.46	0.32	0.33	0.41	0.38	ns
T1	K 90-112	0	0.7	1.2	1.6	1.5	1.7	2.0	2.0	2.8
T2	K 90-112	25	1.4	1.9	2.2	1.9	2.2	2.6	2.5	2.9
T3	K 90-112	35	1.5	2.1	2.1	1.9	2.2	2.5	2.4	3.0
T4	K 90-112	45	1.5	2.4	2.3	2.2	2.3	2.5	2.7	3.2
T5	K 86-161	0	0.4	0.6	1.1	1.1	1.3	1.9	1.8	2.5
T6	K 86-161	25	1.2	1.7	1.9	1.8	2.0	2.7	2.8	3.3
T7	K 86-161	35	1.1	1.6	2.2	2.2	2.1	2.5	2.6	3.4
T8	K 86-161	45	1.3	1.7	2.0	2.0	1.9	2.4	2.4	3.0
T9	Phil 66-07	0	0.5	0.5	0.8	1.1	1.3	1.6	1.8	2.4
T10	Phil 66-07	25	1.5	1.9	2.4	2.4	2.2	2.3	2.2	2.7
T11	Phil 66-07	35	1.5	1.9	2.3	2.3	2.2	2.4	2.4	2.8
T12	Phil 66-07	45	1.8	2.2	2.6	2.5	2.4	2.6	2.7	3.1
LSD (0.05)			0.45	0.59	0.79	0.55	0.58	ns	ns	ns
C.V. (%)			26.29	25.18	28.09	20.08	20.34	21.50	19.31	22.33

Interactions between sugarcane cultivars and rates of applied phosphorus on leaf area index were significant during 3 – 7 months after planting. K 90-112 and Phil 66-07 with application of 45 kg TSP per rai ( $P_3$ ) gave the highest leaf area index in all sampling dates. However, in K 86-161, the highest leaf area index was attained with phosphorus application at the rate of 35 kg TSP per rai ( $P_2$ ) with the exception at three and four months after planting where the highest rates of phosphorus ( $P_3$ ) gave the highest leaf area index.

In general, no phosphorus application ( $P_0$ ) gave the lowest leaf area index among all cultivars at all sampling dates.

#### **4. Leaf Area Duration**

Leaf area duration of the three sugarcane cultivars was significantly different ( $P < 0.05$ ) at 3 – 4 and 4 – 5 months after planting. K 86-161 had the lowest leaf area duration between 3 – 4 and 7 – 8 months after planting whereas Phil 66-07 had the lowest leaf area duration at 8 – 9 and 9 – 10 months after planting.

Rates of phosphorus applications also had significant effects on leaf area duration ( $P < 0.05$ ). Leaf area duration of sugarcane increased with increasing rates of applied phosphorus.

Between 3 – 4 and 7 – 8 months after planting, interactions between sugarcane cultivars and rates of applied phosphorus on leaf area duration were significant. This indicates that leaf area duration of the three sugarcane cultivars responded differently to the rates of applied phosphorus. In K 90-112 and Phil 66-07, the highest rate of phosphorus application (45 kg TSP per rai,  $P_3$ ) gave the highest leaf area duration during three to eight months after planting. However in K 86-161, the highest leaf area duration was attained with phosphorus application at the rate of 35 kg TSP per rai ( $P_2$ ). It was observed that no phosphorus application ( $P_0$ ) gave the lowest leaf area duration in all cultivars at all sampling dates. With no phosphorus application ( $P_0$ ), the highest leaf area duration was attained in K 90-112 followed by K 86-161 and Phil 66-07 (Table 5).

**Table 5** Effect of phosphorus application on leaf area duration in three sugarcane cultivars (m<sup>2</sup>month/stool) (See analysis of variance in Appendix 6)

Treatment	Cultivars	TSP (kg/rai)	Period of growth						
			3-4	4-5	5-6	6-7	7-8	8-9	9-10
V1	K 90-112		1.0	1.3	1.3	1.3	1.5	1.6	1.8
V2	K 86-161		0.8	1.0	1.2	1.2	1.4	1.6	1.8
V3	Phil 66-07		1.0	1.2	1.3	1.3	1.4	1.5	1.6
LSD (0.05)			0.15	0.19	ns	ns	ns	ns	ns
P0		0	0.4	0.6	0.8	0.9	1.0	1.2	1.4
P1		25	1.1	1.3	1.4	1.4	1.5	1.6	1.8
P2		35	1.0	1.3	1.4	1.4	1.5	1.6	1.8
P3		45	1.2	1.4	1.5	1.4	1.5	1.7	1.9
LSD (0.05)			0.17	0.23	0.22	0.18	0.20	0.20	0.26
T1	K 90-112	0	0.6	0.9	1.0	1.1	1.2	1.3	1.6
T2	K 90-112	25	1.1	1.3	1.3	1.3	1.6	1.7	1.8
T3	K 90-112	35	1.2	1.4	1.3	1.4	1.5	1.6	1.8
T4	K 90-112	45	1.2	1.5	1.4	1.5	1.6	1.1	1.9
T5	K 86-161	0	0.3	0.5	0.7	0.8	1.0	1.2	1.4
T6	K 86-161	25	1.0	1.2	1.2	1.2	1.5	1.8	2.0
T7	K 86-161	35	0.9	1.2	1.4	1.4	1.5	1.7	2.0
T8	K 86-161	45	1.0	1.2	1.3	1.3	1.4	1.6	1.8
T9	Phil 66-07	0	0.3	0.4	0.6	0.8	0.9	1.1	1.4
T10	Phil 66-07	25	1.1	1.4	1.6	1.5	1.5	1.5	1.6
T11	Phil 66-07	35	1.1	1.4	1.5	1.5	1.5	1.5	1.7
T12	Phil 66-07	45	1.3	1.6	1.7	1.6	1.6	1.7	1.9
LSD (0.05)			0.29	0.39	0.37	0.31	0.35	ns	ns
C.V. (%)			22.17	23.37	20.73	16.94	17.57	15.99	18.37

## 5. Net Assimilation Rate (NAR)

Net assimilation rates of the three sugarcane cultivars were not different in all sampling dates with the exception at 4 – 5 months after planting when K 90-112 had the lowest net assimilation rate.

Rates of phosphorus application had no effect on net assimilation rate of sugarcane. It was observed that during 3 – 4 to 5 – 6 months after planting no phosphorus application ( $P_0$ ) tended to give higher net assimilation rate than phosphorus application ( $P_1$ ,  $P_2$  and  $P_3$ ). However during 6 – 7 to 9 – 10 months after planting  $P_0$  tended to give the lowest net assimilation rates in all cultivars.

Interactions between sugarcane cultivars and rates of applied phosphorus on net assimilation rate were not significant. It was found that K 90-112 with 45 kg TSP per rai ( $P_3$ ) tended to give the highest net assimilation rate during 3 – 4 to 8 – 9 months after planting while K 86-161 and Phil 66-07 tended to have the highest net assimilation rates during 3 – 4 to 5 – 6 months after planting when applying no phosphorus ( $P_0$ ) (Table 6).

## 6. Sucrose Accumulation

Sucrose accumulation was sampled from six to ten months after planting. All the three sugarcane cultivars accumulated sucrose from the sixth month and attained the maximum sucrose level at the ninth months after planting, then reduced at the tenth month. Sucrose accumulations of the three cultivars were significantly different. Phil 66-07 had the highest sucrose accumulation through all the sampling periods, followed by K 86-161 and K 90-112.

Rate of phosphorus application had significant effects on sucrose accumulations of sugarcane at the sixth and ninth months after planting. No phosphorus application ( $P_0$ ) gave the lowest sucrose accumulation at all sampling dates.

During six to eight months after planting, there was no interaction between sugarcane cultivars and rates of applied phosphorus on sucrose accumulation. Between nine and ten months after planting, K 86-161 with 35 kg TSP per rai ( $P_2$ ) gave the highest CCS. During the same period, Phil 66-07 with the highest rate of phosphorus application ( $P_3$ ) gave the highest CCS (Table7).

**Table 6** Effect of phosphorus application on net assimilation rate in three sugarcane cultivars ( $\text{g/m}^2\text{month}$ ) (See analysis of variance in Appendix 7)

Treatment	Cultivars	TSP (kg/rai)	Period of growth						
			3-4	4-5	5-6	6-7	7-8	8-9	9-10
V1	K 90-112		119	118	110	85	83	98	99
V2	K 86-161		163	200	167	122	119	113	112
V3	Phil 66-07		149	180	150	118	121	130	127
LSD (0.05)			ns	44.7	ns	Ns	ns	ns	ns
P0		0	179	226	174	85	96	107	116
P1		25	123	138	130	115	113	113	112
P2		35	137	147	132	116	104	108	110
P3		45	136	151	132	117	118	126	111
LSD (0.05)			ns	ns	ns	Ns	ns	ns	ns
T1	K 90-112	0	122	121	112	64	77	98	116
T2	K 90-112	25	94	108	108	90	83	86	91
T3	K 90-112	35	128	109	106	85	75	90	99
T4	K 90-112	45	132	132	115	101	100	119	89
T5	K 86-161	0	204	291	231	85	106	108	105
T6	K 86-161	25	141	161	121	128	114	98	103
T7	K 86-161	35	154	188	167	157	131	120	121
T8	K 86-161	45	152	159	148	119	124	127	118
T9	Phil 66-07	0	211	266	180	107	106	116	128
T10	Phil 66-07	25	135	146	163	128	143	156	142
T11	Phil 66-07	35	128	143	124	106	106	114	111
T12	Phil 66-07	45	124	163	134	131	129	132	126
LSD (0.05)			ns	ns	ns	Ns	ns	ns	ns
C.V. (%)			43.18	52.92	68.57	66.67	49.79	63.29	73.38

**Table 7** Effect of phosphorus application on sucrose accumulation in three sugarcane cultivars (CCS) (See analysis of variance in Appendix 8)

Treatment	Cultivars	TSP (kg/rai)	Months after planting				
			6	7	8	9	10
V1	K 90-112		7.41	7.97	8.51	8.87	6.66
V2	K 86-161		7.65	8.16	8.57	9.27	8.01
V3	Phil 66-07		8.98	10.21	10.56	10.98	9.58
LSD (0.05)			0.844	0.986	0.977	0.969	1.153
P1		0	7.00	7.96	8.34	8.49	7.03
P2		25	8.21	8.75	9.16	9.67	8.09
P3		35	8.31	9.15	9.68	10.32	8.69
P4		45	8.54	9.26	9.67	10.36	8.51
LSD (0.05)			0.975	ns	ns	1.119	ns
T1	K 90-112	0	6.47	7.95	8.22	7.98	6.54
T2	K 90-112	25	7.73	7.84	8.45	8.87	6.64
T3	K 90-112	35	7.36	8.15	8.42	9.30	6.82
T4	K 90-112	45	8.06	7.94	8.95	9.36	6.64
T5	K 86-161	0	6.31	7.18	7.83	7.65	6.50
T6	K 86-161	25	8.07	7.77	7.79	8.71	7.37
T7	K 86-161	35	8.32	8.69	9.47	10.62	9.55
T8	K 86-161	45	7.91	9.01	9.19	10.09	8.61
T9	Phil 66-07	0	8.21	8.76	8.96	9.84	8.05
T10	Phil 66-07	25	8.82	10.63	11.23	11.43	10.27
T11	Phil 66-07	35	9.25	10.62	11.16	11.03	9.72
T12	Phil 66-07	45	9.63	10.83	10.87	11.62	10.27
LSD (0.05)			ns	ns	ns	1.939	2.305
C.V. (%)			14.64	15.60	14.74	13.87	19.82

### 7. Phosphate in Sugarcane Juice

From Table 8, phosphate levels in sugarcane juice of the three sugarcane cultivars were significantly different ( $P < 0.05$ ) at seven and eight months after planting. Phil 66-07 ( $V_3$ ) had the highest phosphate level in juice through all the sampling dates, with the exception at six months after planting.

Rates of phosphorus application had significant effects on phosphate in juice at six, seven and nine months after planting. However with increasing rates of applied phosphorus, phosphate in juice increased and the maximum level was attained with 45 kg TSP per rai ( $P_3$ ).

Interactions between sugarcane cultivars and rates of applied phosphorus on phosphate in juice were not significant. However no phosphorus application seemed to lead to the lowest level of phosphate in sugarcane juice. It was observed that, in Phil 66-07, application of 35 kg TSP per rai ( $P_2$ ) tended to give the highest phosphate level in sugarcane juice during six to nine months after planting. Between six to eight months after planting, in K 90-112, the highest phosphate in juice was attained with phosphate application at the rate of 35 kg TSP per rai ( $P_2$ ). Moreover, in K 90-112, phosphate in juice reached the maximum during nine to ten months after planting when higher rate of phosphorus ( $P_3$ ) was applied.

### 8. Tillering

As shown in Table 9, tiller numbers of the three sugarcane cultivars were significant ( $P < 0.05$ ) during four to five and eight to ten months after planting. This Table also indicates that K 86-161 had the lowest tillering rate in all sampling dates.

Rates of phosphorus application had significant effect on tillering number of sugarcane during three to five, eight and nine months after planting. No phosphorus application gave the lowest tiller number in most sampling dates.

**Table 8** Effect of phosphorus application on phosphate in sugarcane juice in three sugarcane cultivars (ppm) (See analysis of variance in Appendix 9)

Treatment	Cultivars	TSP (kg/rai)	Months after planting				
			6	7	8	9	10
V1	K 90-112		250	287	236	274	278
V2	K 86-161		24	294	253	269	284
V3	Phil 66-07		270	318	283	292	298
LSD (0.05)			ns	26.9	19.4	ns	ns
P0		0	201	255	239	244	254
P1		25	276	308	260	268	296
P2		35	308	321	266	291	288
P3		45	286	314	266	311	309
LSD (0.05)			42.4	30.9	ns	39.7	ns
T1	K 90-112	0	190	234	216	247	245
T2	K 90-112	25	243	289	244	256	279
T3	K 90-112	35	303	315	243	276	291
T4	K 90-112	45	265	311	241	317	298
T5	K 86-161	0	219	241	231	233	268
T6	K 86-161	25	301	313	254	251	277
T7	K 86-161	35	307	311	253	282	270
T8	K 86-161	45	305	308	276	310	320
T9	Phil 66-07	0	195	289	270	250	249
T10	Phil 66-07	25	281	322	280	298	332
T11	Phil 66-07	35	315	337	301	316	304
T12	Phil 66-07	45	289	322	281	306	307
LSD (0.05)			ns	ns	ns	ns	Ns
C.V. (%)			19.05	12.41	10.39	17.16	16.37

**Table 9** Effect of phosphorus application on number of tillers in three sugarcane cultivars (tiller/stool) (See analysis of variance in Appendix 10)

Treatment	Cultivars	TSP (kg/rai)	Months after planting							
			3	4	5	6	7	8	9	10
V1	K 90-112		5.20	4.96	4.97	4.30	4.23	4.30	4.42	5.07
V2	K 86-161		4.35	4.26	4.06	3.89	3.93	3.93	3.95	4.32
V3	Phil 66-07		4.72	4.47	4.26	4.10	4.27	4.51	5.04	6.15
LSD (0.05)			Ns	0.557	0.526	ns	ns	0.350	0.484	0.410
P0		0	2.61	2.99	3.32	3.79	4.11	4.34	4.21	4.99
P1		25	5.86	5.13	4.72	4.37	4.26	4.43	4.82	5.49
P2		35	4.99	4.89	4.72	4.15	4.09	4.37	4.59	5.48
P3		45	5.56	5.24	4.70	4.08	4.10	3.86	4.25	4.76
LSD (0.05)			0.972	0.643	0.608	ns	ns	0.411	ns	0.473
T1	K 90-112	0	3.01	3.56	4.09	4.31	4.23	4.26	3.97	5.04
T2	K 90-112	25	6.91	5.27	4.71	4.27	4.18	4.59	4.91	5.55
T3	K 90-112	35	4.77	5.09	4.84	4.03	3.95	4.34	4.55	5.28
T4	K 90-112	45	6.11	5.91	5.44	4.62	4.56	4.02	4.24	4.40
T5	K 86-161	0	2.42	2.59	2.82	3.33	3.49	3.82	3.79	3.83
T6	K 86-161	25	4.81	4.74	4.42	4.20	4.02	4.09	4.07	4.53
T7	K 86-161	35	4.98	4.93	4.75	3.94	4.08	4.00	4.09	4.53
T8	K 86-161	45	5.20	4.78	4.26	4.08	4.11	3.81	3.86	4.39
T9	Phil 66-07	0	2.41	2.81	3.05	3.73	4.60	4.93	4.87	6.10
T10	Phil 66-07	25	5.87	5.38	5.02	4.66	4.59	4.59	5.48	6.39
T11	Phil 66-07	35	5.21	4.65	4.56	4.49	4.24	4.77	5.14	6.62
T12	Phil 66-07	45	5.39	5.04	4.40	3.53	3.64	3.73	4.66	5.51
LSD (0.05)			1.683	1.113	1.053	0.948	0.770	ns	ns	0.820
C.V. (%)			24.65	15.45	24.57	16.95	16.76	16.06	15.04	10.99

Interactions between sugarcane cultivars and rates of applied phosphorus on tillering were significant ( $P < 0.05$ ) during three to seven and ten months after planting. In K 86-161, at three, and eight to ten months after planting, the highest tillering was attained with phosphorus application at the rate of 25 kg TSP per rai ( $P_1$ ) and during four to seven months after planting with the rate of 45 kg TSP per rai ( $P_3$ ). In K 86-161, no phosphorus application gave the lowest number of tillers. In Phil 66-07, phosphorus application at the rate of 25 kg TSP per rai ( $P_1$ ) gave the maximum number of tillers with the exception at eight months after planting. In K90-112, the number of tillers was highest at 3, 8, 9 and 10 months when applied with 25 kg of TSP. At 4 to 7 months after planting of K90-112, application of 45 kg of TSP gave the highest number of tillers.

## 9. Stalk Height

Stalk heights of the three sugarcane cultivars were different ( $P < 0.01$ ) at all sampling dates. K 90-112 had the lowest stalk height through all sampling dates. Phil 66-07 had the highest stalk during three to five months after planting while K 86-161 had the highest stalk height during six to ten months after planting.

Rates of phosphorus application also had effect ( $P < 0.01$ ) on height of sugarcane stalks. No phosphorus application gave the lowest stalk height while application of 45 kg TSP per rai ( $P_3$ ) gave the highest stalk during six to ten months after planting.

Interactions between sugarcane cultivars and rates of applied phosphorus on stalk height were significant ( $P < 0.01$ ), indicating that the three sugarcane cultivars responded differently in height to the rates of applied phosphorus. In K 90-112, the highest stalk height was attained with phosphorus application at the rate of 25 kg TSP per rai ( $P_1$ ) while in Phil 66-07, the rate of 45 kg TSP per rai ( $P_3$ ) gave the tallest stalks. In K 86-161, the phosphorus application at the rate of 35 kg TSP per rai ( $P_2$ ) gave the tallest stalk during 3 – 5 months after planting while at 6 – 10 months after planting, 45 kg TSP per rai ( $P_3$ ) had the maximum stalk height. On the other hand, in all the sugarcane cultivars, no phosphorus application gave the shortest stalk. Among them, K 86-161 was the tallest whereas K 90-112 was the shortest (Table 10).

**Table 10** Effect of phosphorus application on stalk height in three sugarcane cultivars (cm) (See analysis of variance in Appendix 11)

Treatment	Cultivars	TSP (kg/rai)	Months after planting							
			3	4	5	6	7	8	9	10
V1	K 90-112		58	74	84	91	97	102	107	120
V2	K 86-161		84	106	124	139	150	158	169	186
V3	Phil 66-07		93	114	128	136	145	151	157	172
	LSD (0.05)		6.8	7.3	8.4	8.9	9.7	10.6	10.9	11.8
P0		0	47	60	70	78	85	90	99	113
P1		25	89	111	126	137	145	152	158	171
P2		35	89	111	126	137	15	152	158	175
P3		45	88	110	127	139	149	156	163	178
	LSD (0.05)		7.9	8.5	9.7	10.3	11.2	12.2	1.6	13.6
T1	K 90-112	0	42	53	61	67	72	76	82	98
T2	K 90-112	25	63	80	90	97	102	106	109	119
T3	K 90-112	35	65	82	93	101	109	116	123	136
T4	K 90-112	45	63	81	91	99	105	111	116	128
T5	K 86-161	0	51	67	79	88	95	100	114	127
T6	K 86-161	25	95	120	140	156	168	178	187	203
T7	K 86-161	35	97	122	140	155	166	174	182	203
T8	K 86-161	45	92	117	139	157	171	182	192	209
T9	Phil 66-07	0	48	61	71	80	87	94	99	114
T10	Phil 66-07	25	110	133	147	157	165	171	177	191
T11	Phil 66-07	35	105	130	144	152	159	165	170	184
T12	Phil 66-07	45	109	134	150	160	169	175	183	199
	LSD (0.05)		13.7	14.8	16.7	17.8	19.5	21.2	21.9	23.5
	C.V. (%)		12.14	12.14	10.37	10.10	10.34	10.70	10.53	10.26

## 10. Phosphorus Content in Index Leaf

After phosphorus application, phosphorus content in the third topmost visible dewlap leaf or index leaf of the three sugarcane cultivars was significant ( $P < 0.01$ ) at 100 and 120 days after planting (the third and fourth sampling dates), and nine and ten months after planting. As can be seen from Table 11, K 86-161 had the highest phosphorus content in index leaf at all sampling dates with the exception at 60 days after planting (the first sampling date).

Rates of phosphorus application also had significant effect on phosphorus content in index leaf of sugarcane ( $P < 0.01$ ) with the exception at six and eight months after planting. Sugarcane with phosphorus application had higher phosphorus content in index leaf than the one with no phosphorus application. The highest rate of phosphorus application ( $P_3$ ) gave the maximum phosphorus content in index leaf.

Interactions between sugarcane cultivars and rates of applied phosphorus on phosphorus content in index leaf were significant ( $P < 0.05$ ) at all sampling dates except during six to eight months after planting. No phosphorus application ( $P_0$ ) gave the lowest phosphorus content in index leaf of all three sugarcane cultivars. However levels of phosphorus content in index leaf were different among the three cultivars. In K 86-161, the highest phosphorus content in index leaf was attained with phosphorus application at the rate of 45 kg TSP per rai ( $P_3$ ) (Table 11). In K90-112, application of phosphorus at 35 kg of TSP per rai gave the highest phosphorus content in the index leaf at most sampling dates with the exception at 60 and 100 days and 8 months after planting. In contrast, in Phil 66-07, the highest phosphorus content in the index leaf was obtained from application of either 25 or 45 kg of TSP per rai at most sampling dates (Table 11).

**Table 11** Effect of phosphorus application on phosphorus content in index leaf of three sugarcane cultivars (percent) (See analysis of variance in Appendix 12)

Treatment	Cultivars	TSP (kg/rai)	Months after planting									
			1	2	3	4	5	6	7	8	9	10
V1	K 90-112		0.24	0.20	0.15	0.16	0.15	0.12	0.14	0.13	0.13	0.12
V2	K 86-161		0.23	0.21	0.18	0.18	0.16	0.13	0.14	0.14	0.14	0.14
V3	Phil 66-07		0.24	0.20	0.17	0.15	0.15	0.12	0.14	0.13	0.12	0.11
LSD (0.05)			Ns	ns	0.015	0.015	ns	ns	ns	ns	0.010	0.008
P0		0	0.12	0.12	0.14	0.15	0.13	0.11	0.12	0.13	0.12	0.10
P1		25	0.27	0.21	0.17	0.16	0.16	0.13	0.14	0.14	0.13	0.13
P2		35	0.27	0.24	0.17	0.16	0.16	0.12	0.14	0.14	0.14	0.13
P3		45	0.29	0.24	0.18	0.18	0.16	0.12	0.15	0.14	0.14	0.14
LSD (0.05)			0.034	0.032	0.018	0.017	0.014	ns	0.014	ns	0.011	0.009
T1	K 90-112	0	0.13	0.14	0.15	0.15	0.14	0.11	0.11	0.12	0.12	0.11
T2	K 90-112	25	0.26	0.21	0.15	0.14	0.15	0.12	0.13	0.13	0.13	0.12
T3	K 90-112	35	0.26	0.23	0.15	0.17	0.16	0.13	0.16	0.13	0.14	0.13
T4	K 90-112	45	0.29	0.21	0.16	0.16	0.15	0.12	0.15	0.14	0.13	0.12
T5	K 86-161	0	0.11	0.10	0.14	0.15	0.12	0.12	0.13	0.13	0.12	0.11
T6	K 86-161	25	0.24	0.21	0.18	0.19	0.17	0.14	0.14	0.15	0.14	0.15
T7	K 86-161	35	0.28	0.25	0.19	0.17	0.17	0.13	0.14	0.14	0.15	0.14
T8	K 86-161	45	0.31	0.26	0.22	0.21	0.18	0.14	0.14	0.16	0.16	0.16
T9	Phil 66-07	0	0.12	0.11	0.14	0.14	0.13	0.12	0.12	0.12	0.11	0.08
T10	Phil 66-07	25	0.30	0.20	0.17	0.16	0.15	0.12	0.14	0.14	0.13	0.13
T11	Phil 66-07	35	0.27	0.23	0.18	0.15	0.15	0.12	0.13	0.14	0.12	0.12
T12	Phil 66-07	45	0.28	0.25	0.17	0.16	0.16	0.12	0.15	0.13	0.13	0.13
LSD (0.05)			0.058	0.055	0.031	0.030	0.024	ns	ns	ns	0.019	0.016
C.V. (%)			17.09	19.02	12.79	12.80	10.99	11.63	12.47	13.48	10.19	8.99

## 11. Nutrient Content in Sugarcane Parts

Analysis of nutrient content in green leaf, leaf sheath, dry leaf and stalk of cane at harvest was done to study the effect of phosphorus application.

### 11.1 Nitrogen

Nitrogen content of the three sugarcane cultivars was significant ( $P < 0.01$ ) in leaf sheath, green leaf and dry leaf, but not in stalk. The highest nitrogen contents in green leaf and leaf sheath were found in K 86-161 (0.51 and 0.97%), and followed by Phil 66-07 (0.47 and 0.83%). In dry leaf, Phil 66-07 had the highest nitrogen content with 0.39%, followed by K 86-161 with 0.35% nitrogen content.

Rates of phosphorus application had no effect on nitrogen contents in all sugarcane parts. Nitrogen contents ranged from 0.18-0.22, 0.46-0.49, 0.84-0.87 and 0.34-0.37% in stalk, leaf sheath, green leaf and dry leaf respectively.

Interactions between sugarcane cultivars and rates of applied phosphorus on nitrogen content in sugarcane parts were not different. However, K 86-161 with no phosphorus application gave higher nitrogen content in stalk, leaf sheath and green leaf than the phosphorus applications. In K 90-112, the highest nitrogen contents were found in leaf sheath, green leaf and dry leaf with phosphorus application at the rate of 45 kg TSP per rai ( $P_3$ ). Phil 66-07 had the highest nitrogen contents in leaf sheath and green leaf when the highest rate of phosphorus was applied, while the highest nitrogen content in dry leaf was attained with phosphorus application at the rate of 25 kg TSP per rai ( $P_1$ ) (Table12).

### 11.2 Phosphorus

Phosphorus content in stalk, green leaf, and dry leaf of the three sugarcane cultivars were significant ( $P < 0.05$ ). When compared among varieties, K 86-161, had the lowest phosphorus content in dry leaf (0.03%). K 90-112 had the highest phosphorus content in stalk (0.02%) while the lowest phosphorus content was in green leaf (0.09%).

**Table 12** Effect of phosphorus application on nitrogen content in sugarcane parts  
(See analysis of variance in Appendix 14)

Treatment	Cultivars	TSP (kg/rai)	Nitrogen content in parts of sugarcane (%)			
			Stalk	Leaf sheath	Green leaf	Dry leaf
V1	K 90-112		0.21	0.42	0.79	0.32
V2	K 86-161		0.19	0.51	0.97	0.35
V3	Phil 66-07		0.19	0.47	0.83	0.39
LSD (0.05)			ns	0.038	0.080	0.032
P0		0	0.22	0.47	0.85	0.34
P1		25	0.18	0.46	0.85	0.37
P2		35	0.19	0.46	0.84	0.36
P3		45	0.18	0.49	0.87	0.35
LSD (0.05)			ns	ns	ns	ns
T1	K 90-112	0	0.21	0.40	0.77	0.33
T2	K 90-112	25	0.19	0.42	0.78	0.34
T3	K 90-112	35	0.20	0.41	0.74	0.30
T4	K 90-112	45	0.20	0.45	0.81	0.32
T5	K 86-161	0	0.20	0.53	0.95	0.34
T6	K 86-161	25	0.20	0.49	0.94	0.36
T7	K 86-161	35	0.19	0.49	0.94	0.34
T8	K 86-161	45	0.20	0.52	0.94	0.37
T9	Phil 66-07	0	0.21	0.48	0.84	0.36
T10	Phil 66-07	25	0.20	0.47	0.84	0.41
T11	Phil 66-07	35	0.20	0.47	0.83	0.43
T12	Phil 66-07	45	0.20	0.48	0.85	0.37
LSD (0.05)			ns	ns	ns	ns
C.V. (%)			31.97	13.18	10.41	12.67

Phosphorus application at any rates significantly increased phosphorus content only in green leaf ( $P < 0.01$ ). For leaf sheath, even though rates of phosphorus application had no significant effect on phosphorus content, sugarcane from no phosphorus application tended to have lower phosphorus content in leaf sheath (0.06%) when compared to the phosphorus application treatments.

Interactions between sugarcane cultivars and rates of applied phosphorus on phosphorus content in sugarcane parts were not significant. However without phosphorus application, phosphorus content in leaf sheath and green leaf tended to be lower, comparing to phosphorus treatments (Table13).

### 11.3 Potassium

Potassium contents in various parts of the three sugarcane cultivars were significantly different ( $P < 0.05$ ) except in leaf sheath. Phil 66-07 had the highest potassium content in all sugarcane parts.

Any rates of phosphorus application had no significant effect on potassium content in various parts of sugarcane. However, no phosphorus application ( $P_0$ ) gave lower potassium in leaf sheath (0.73%) and green leaf (0.88%) than the one with phosphorus application.

There were no interactions between sugarcane cultivars and rates of applied phosphorus on potassium content in various parts of sugarcane. In general, potassium content in leaf, stalk, leaf sheath and dry leaf ranged from 0.46% to 0.60%, 0.71 to 0.80%, 0.82 to 0.10% and 0.33 to 0.43%, respectively (Table14).

**Table 13** Effect of phosphorus application on phosphorus content in sugarcane parts (See analysis of variance in Appendix 14)

Treatment	Cultivars	TSP (kg/rai)	Phosphorus content in parts of sugarcane (%)			
			Stalk	Leaf sheath	Green leaf	Dry leaf
V1	K 90-112		0.02	0.07	0.09	0.04
V2	K 86-161		0.01	0.08	0.11	0.03
V3	Phil 66-07		0.01	0.08	0.11	0.04
LSD (0.05)			0.006	ns	0.016	0.008
P0		0	0.01	0.06	0.07	0.04
P1		25	0.01	0.08	0.11	0.04
P2		35	0.02	0.08	0.11	0.04
P3		45	0.01	0.08	0.11	0.04
LSD (0.05)			ns	ns	0.018	ns
T1	K 90-112	0	0.02	0.06	0.06	0.04
T2	K 90-112	25	0.02	0.07	0.10	0.05
T3	K 90-112	35	0.03	0.07	0.10	0.05
T4	K 90-112	45	0.02	0.08	0.10	0.05
T5	K 86-161	0	0.01	0.07	0.09	0.03
T6	K 86-161	25	0.01	0.08	0.12	0.03
T7	K 86-161	35	0.01	0.08	0.12	0.03
T8	K 86-161	45	0.01	0.08	0.12	0.03
T9	Phil 66-07	0	0.01	0.05	0.07	0.04
T10	Phil 66-07	25	0.01	0.08	0.12	0.04
T11	Phil 66-07	35	0.01	0.08	0.12	0.04
T12	Phil 66-07	45	0.01	0.08	0.12	0.05
LSD (0.05)			ns	ns	ns	ns
C.V. (%)			31.97	13.18	36.45	33.80

**Table 14** Effect of phosphorus application on potassium content in sugarcane parts  
(See analysis of variance in Appendix 14)

Treatment	Cultivars	TSP (kg/rai)	Potassium content in parts of sugarcane (%)			
			Stalk	Leaf sheath	Green leaf	Dry leaf
V1	K 90-112		0.49	0.76	0.85	0.36
V2	K 86-161		0.53	0.75	0.92	0.34
V3	Phil 66-07		0.57	0.75	0.93	0.40
LSD (0.05)			0.069	ns	0.053	0.046
P0		0	0.54	0.73	0.88	0.37
P1		25	0.55	0.76	0.94	0.38
P2		35	0.51	0.75	0.89	0.36
P3		45	0.53	0.77	0.89	0.37
LSD (0.05)			ns	ns	ns	ns
T1	K 90-112	0	0.47	0.71	0.82	0.36
T2	K 90-112	25	0.50	0.76	0.86	0.37
T3	K 90-112	35	0.46	0.76	0.86	0.35
T4	K 90-112	45	0.52	0.80	0.86	0.37
T5	K 86-161	0	0.55	0.74	0.90	0.34
T6	K 86-161	25	0.54	0.73	0.97	0.33
T7	K 86-161	35	0.52	0.76	0.91	0.37
T8	K 86-161	45	0.52	0.76	0.91	0.33
T9	Phil 66-07	0	0.58	0.76	0.91	0.41
T10	Phil 66-07	25	0.60	0.78	1.00	0.43
T11	Phil 66-07	35	0.55	0.72	0.90	0.35
T12	Phil 66-07	45	0.55	0.74	0.91	0.40
LSD (0.05)			ns	ns	Ns	ns
C.V. (%)			34.17	15.32	41.40	29.28

## **12. Yield and Yield Components**

### **12.1 Yield**

Referring to Table 15, yields of the three sugarcane cultivars were significantly different ( $P < 0.01$ ). Phil 66-07 had the highest yield of 8.53 tonnes per rai, followed by K 86-161 and K 90-112 with cane yield of 7.74 and 6.23 tonnes per rai, respectively.

Rate of phosphorus application also had significant effect on cane yield ( $P < 0.01$ ). Sugarcane yield increased with increasing rates of applied phosphorus.

Interactions between sugarcane cultivars and rates of applied phosphorus on sugarcane production were significant ( $P < 0.01$ ), indicating that the three sugarcane cultivars responded differently to the rates of applied phosphorus. In all three cultivars, no phosphorus application consistently gave the lowest cane yield. Increasing rates of phosphorus application for K 90-112 increased cane yield and the highest yield was attained with the phosphorus application at the highest rate, 45 kg TSP per rai ( $P_3$ ). However the highest yield of K 86-161 (9.25 tonnes per rai) was attained with 35 kg TSP per rai ( $P_2$ ) while Phil 66-07 with 25 kg TSP per rai ( $P_1$ ) had the maximum yield of 9.90 tonnes per rai. Phil 66-07 produced higher yield and responded to phosphorus application better than K 86-161 and K 90-112, respectively.

### **12.2 Yield Components**

#### **12.2.1 Number of Stalks per Rai**

Significant differences among the three sugarcane cultivars were observed in number of stalk per rai. Phil 66-07 had the highest number of stalk per rai (9,305 stalks per rai) while K 90-112 was the lowest (7,969 stalks per rai). Rates of phosphorus application had significant effect on number of stalk per rai, being highest when phosphorus was applied at the rate of 35 kg TSP per rai ( $P_2$ ) and lowest when no phosphorus was applied. Interactions between cultivars and rates of phosphorus were not significant (Table 15).

**Table 15** Yield and yield components of sugarcane cultivars under different rates of phosphorus application (See analysis of variance in Appendix 13)

Treatment	Cultivars	TSP (kg/rai)	Yield (tonnes/rai)	No. of stalks (Stalks/rai)	Stalk weight (kg/stalk)	CCS (%)	Sugar Yield (kg/rai)
V1	K 90-112		6.23	7969	0.77	5.93	367
V2	K 86-161		7.74	8210	0.93	7.09	562
V3	Phil 66-07		8.53	9305	0.91	8.75	774
LSD (0.05)			0.91	703.3	0.089	0.703	92.4
P0		0	4.68	7593	0.62	6.41	302
P1		25	8.28	8653	0.95	7.35	632
P2		35	8.44	8981	0.94	7.70	669
P3		45	8.60	8751	0.98	7.57	668
F-test			1.04	812.0	0.102	0.812	106.7
T1	K 90-112	0	4.40	7118	0.62	6.76	303
T2	K 90-112	25	6.40	8133	0.79	5.18	331
T3	K 90-112	35	6.50	8359	0.78	6.05	401
T4	K 90-112	45	7.63	8264	0.92	5.72	435
T5	K 86-161	0	4.78	7190	0.66	5.66	271
T6	K 86-161	25	8.53	8482	1.01	7.74	654
T7	K 86-161	35	9.25	8698	1.06	7.52	695
T8	K 86-161	45	8.40	8472	0.99	7.44	628
T9	Phil 66-07	0	4.88	8472	0.58	6.82	333
T10	Phil 66-07	25	9.90	9344	1.06	9.12	910
T11	Phil 66-07	35	9.58	9887	0.97	9.53	911
T12	Phil 66-07	45	9.78	9518	1.03	9.55	942
F-test			1.82	ns	0.178	1.406	184.8
C.V. (%)			16.82	11.50	14.15	13.46	22.61

### 12.2.2 Stalk Weight

Stalk weights of sugarcane were significantly different among varieties. Rates of phosphorus application also had significant effects on stalk weight. Significant interactions between cultivars and rates of phosphorus were observed in terms of stalk weight. Zero phosphorus application gave lowest stalk weights in all three cultivars, however, the highest stalk weight of K 90-112 was obtained when 45 kg TSP per rai was applied while those of K 86-161 and Phil 66-07 with the application of 35 and 25 kg TSP per rai, respectively (Table 15).

### 12.2.3 Commercial Cane Sugar (CCS)

Table 15 shows both cultivars and rates of phosphorus application had significant effect on commercial cane sugar values (CCS) at final harvest. It was noted that significant interactions between the two factors were also observed. The highest CCS value of K 90-112 was obtained when no phosphorus was applied (6.76%) but those of K 86-161 (7.74%) and Phil 66-07 (9.55%) were obtained when 25 and 45 kg TSP per rai were applied, respectively.

### 12.2.4 Sugar Yield

Sugar yields, which can be calculated from CCS values and tonnes cane yield, were significantly affected by both cane cultivars and rates of phosphorus application (Table 15). Interactions between the two factors also had significant effect on sugar yield. Zero phosphorus application gave the lowest sugar yield in all three cultivars i.e. 208, 302 and 333 in cane cultivars for K 86-161, K 90-112 and Phil 66-07 respectively. For maximum yields, K 90-112 (434.29 kg per rai) and Phil 66-07 (942.30 kg per rai) were obtained with the application of 45 kg TSP per rai, while that of K 86-161 (695 kg per rai) was obtained with the application of 35 kg TSP per rai (Table 15).

## 13. Harvest Index

All three sugarcane cultivars were significant different in harvest index of cane and sugar yields ( $P < 0.01$ ). Phil 66-07 had the highest harvest index of cane and sugar yields whereas K 90-112 had the lowest values. Rates of phosphorus applied

also had significant effects on cane and sugar yields harvest index ( $P < 0.01$ ). The lowest harvest index of cane and sugar yields were obtained when no phosphorus was applied. In addition, the maximum values of both cane and sugar yields were obtained with the phosphorus application at the rates of 35 and 45 kg TSP per rai ( $P_2$  and  $P_3$ ).

There was significant interaction between sugarcane cultivars and rates of phosphorus application on harvest index of both cane and sugar yield. K 90-112 had the highest harvest index of both yields when 45 kg TSP per rai ( $P_3$ ) was applied. Phil 66-07 obtained the highest harvest index of cane and sugar yields with phosphorus application at the rate of 25 kg TSP per rai ( $P_1$ ), followed by 45 kg TSP per rai ( $P_3$ ), 35 kg TSP per rai ( $P_2$ ) and zero phosphorus application (Table 16).

**Table 16** Cane and sugar yield harvest index of sugarcane cultivars with various rates of phosphorus application (See analysis of variance in Appendix 13)

Treatment	Cultivars	TSP (kg/rai)	Harvest Index	
			Cane	Sugar
V1	K 90-112		0.52	0.35
V2	K 86-161		0.63	0.51
V3	Phil 66-07		0.65	0.63
LSD (0.05)			0.038	0.083
P0		0	0.55	0.40
P1		25	0.63	0.52
P2		35	0.61	0.54
P3		45	0.62	0.54
LSD (0.05)			0.043	0.095
T1	K 90-112	0	0.48	0.33
T2	K 90-112	25	0.54	0.36
T3	K 90-112	35	0.51	0.35
T4	K 90-112	45	0.55	0.37
T5	K 86-161	0	0.59	0.39
T6	K 86-161	25	0.65	0.48
T7	K 86-161	35	0.66	0.63
T8	K 86-161	45	0.64	0.55
T9	Phil 66-07	0	0.59	0.48
T10	Phil 66-07	25	0.69	0.71
T11	Phil 66-07	35	0.66	0.65
T12	Phil 66-07	45	0.67	0.69
LSD (0.05)			0.075	0.165
C.V. (%)			8.67	23.06