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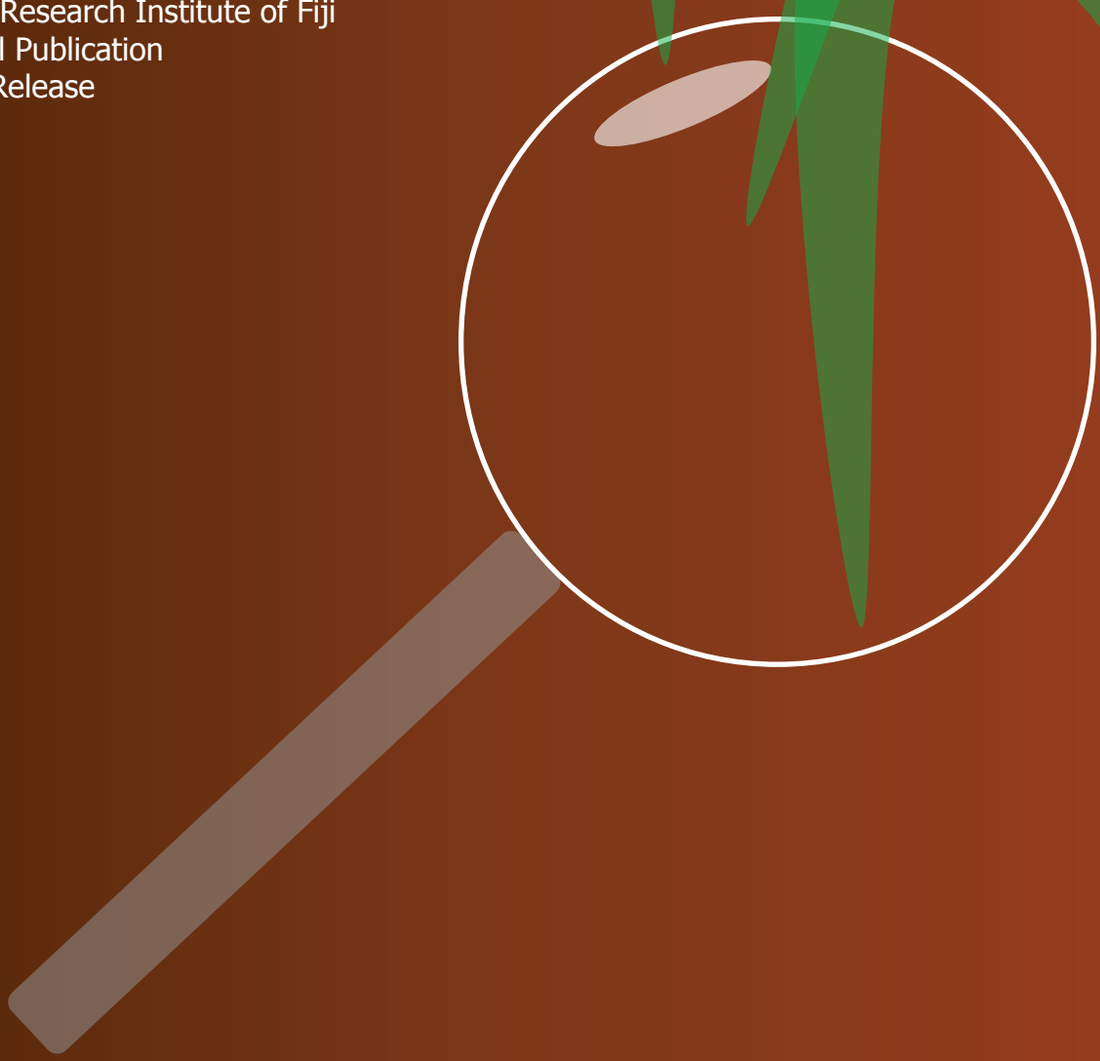

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MISSION STATEMENT

To advance the industry by excellence in technology transfer emanating from research results through science that supports innovative activities in sugar related industries and to make the Fiji Sugar Industry productive and sustainable.

TABLE OF CONTENT

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CROP IMPROVEMENT

Project 1: A comparative study of family and individual mass selection methods as early selection criteria

A prototype trial that was established in 2010 was analyzed. In this trial seedlings from 50 families (crosses) were planted in 4 replicates. Each replicate had 20 seedlings. Individual mass selection and family selection was conducted in the plant crop. The clones selected under individual selection have been propagated and will be planted with the clones that will be selected in the first ratoon that will follow the family selection criteria.

Project 2: Nobilization of Erianthus

The nobilization work continued in 2011 and an additional 57 crosses were effected with *Erianthus arundinaceous*. 31 putative hybrids from the 2009 nobilization crosses were in the flowering beds of which 10 flowered and were used to make 38 outcrosses with high brix commercial cultivars. The progeny from these crosses will be handled separately from routine Stage 1 evaluation.

Project 3: Germplasm and Breeding plots

A total of 5906 clones are being maintained of which 743 are in the breeding plots (around 13%). Major highlights in 2011 has been on restoration of the Drasa germplasm i.e. initiation of re-planting and re-location of breeding plots to the new site at Dobuilevu that has been purchased by SRIF. The current germplasm collection is summarized in the following table.

Table 1: Details on the existing SRIF sugarcane germplasm

Sub-collection	Description	No. of clones	Year Planted
Drasa	Commercials, backcross progeny, imported varieties (existing as singles, duplicates, triplicates and quadruplicates)	3093	1993
	Commercials, backcross progeny, imported varieties (singles from 1993 collection)	1638	2011
	Sub-total	**4731**	
Wairuku	S. officinarum var. Korpi, Badila x S. spontaneum var. Tobago, Mandalay hybrids (KT's, BT's, KM's, BM's)	235	2009
	S. spontaneum hybrids developed under Joint Research Project CSR Macknade and DNPRC (David North Plant Research Centre) in 1964	197	2009
	Sub-total	**432**	
Dobuilevu	Indonesian collection (IJ/IK)	101	2009
	S. officinarum x S. spontaneum hybrids (KT/BT)	7	2009
	S. officinarum collection	123	2009
	Commercial hybrids, near commercials and commercials.	512	2007-2011
	Overseas varieties (BSES – 15, MSIRI -10)	25	2010-2011
	Sub-total	**743**	
	Total	**5906**	

The DNA fingerprinting work was initiated and DNA extractions from 9 samples were sent to Mauritius Sugar Industry Research Institute - MSIRI. Unfortunately all the samples were contaminated and work on getting clean samples is ongoing.

Project 4: Sugarcane crossing

A total of 1015 crosses were set this year. The objective had been the same as 2010 i.e. continue with the polycrosses and parental line development. The proportion of the crosses that were set is as follows 13 bi-parental, 489 polycrosses and 513 experimental crosses. The experimental crosses comprised of 57 with *Erianthus arundinaceous,* 69 outcrosses with 2009 H1, 164 with *Saccharum officinarum,* 9 with *Saccharum robustum,* 14 with Korpi x *S. spontaneum* hybrids and 200 with varieties from IJ/IK collection). The fuzz from the experimental crosses will be monitored separately.

Project 5: Pollen Viability

The pollen from first anthesis was collected for *Erianthus arundinaceous, Saccharum officinarum,* Spartan and LF02-48. It was kept and cultured at hourly intervals to study the life span of pollen. In this study, it was found that pollen can remain viable for up to two hours under Dobuilevu conditions after which the percentage viability starts to drop. If pollen is collected and kept covered in a dry petri dish it can be kept for six hours with a minimum viability of 50%.

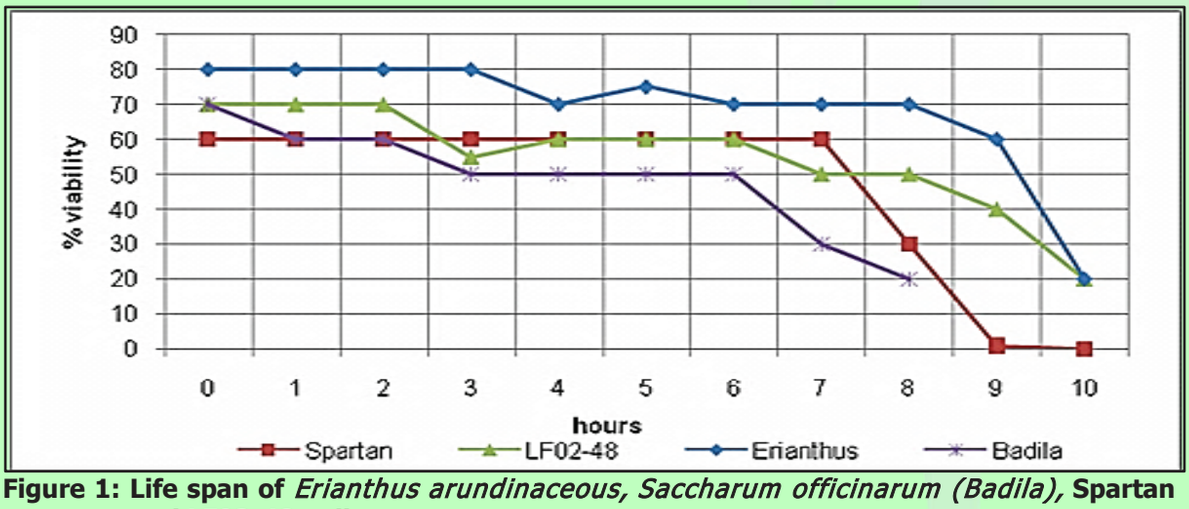


Figure 1: Life span of *Erianthus arundinaceous, Saccharum officinarum (Badila),* Spartan and LF02-48 pollen

Project 6: Fuzz Sowing

A total of 781 packets of fuzz were sown from 2009, 2010 and 2011 crosses of which 450 germinated giving 58% germination. The breakdown of the type of crosses that were sown and the respective germination as % is provided in Table below.

Table 2: Details of 2011 Fuzz Sowing

Description	**2009**	**2010**	**2011**	**Total**
No. of Bi-parental Crosses Trays Sown	41	3	5	49
No. of Trays Bi-parental Crosses Geminated	5	3	2	10
% Germination	**12**	**100**	**40**	**20**
No. of Poly Crosses Trays Sown	96	273	173	542
No. of Trays Poly Crosses Geminated	31	193	117	341
% Germination	**32**	**71**	**68**	**63**
No. of Experimental Trays Sown	17	10	163	190
No. of Experimental Trays Geminated	3	3	93	99
% Germination	**18**	**30**	**57**	**52**
Total sown (Exp + Poly)	154	286	341	781
Total Germinated (Exp+ Poly)	39	199	212	450
Total as %	**43**	**76**	**76**	**58**

Project 7: Stage 1

In 2011, LF2010 series was analyzed and LF2011 series was planted. A total of 25 554 seedlings was evaluated for LF2010 series and 1250 clones were selected based on field brix and planted as Stage 2. The seedlings for experimental crosses were not evaluated due to flooding and excessive lodging. For LF2011, a total of 9 182 and 1 458 seedlings were planted for the commercial and experimental crosses from the original 16 717 and 2 530 respectively. The balance seedlings were lost to floods and excessive rain that affected the seedlings in the trays.

Project 8: Stage 2

LF2009 series was evaluated and LF2010 series planted. A total of 1881 clones were in LF2009 Stage 2 of which 442 were selected for biochemical analysis based upon field brix and field grading on characteristics like trashing, growth habit, lodging, disease symptoms. A final selection of 141 varieties was made based on %pocs and %fibre and planted as Stage 3.

Project 9: Stage 3

LF2008 series was evaluated and LF2009 series planted. LF2008 series had 75 varieties out of which 19 were selected based on the biochemical data and had been panted in propagation plot for Stage 4. All the varieties from Stage 3 had been sent for FLG screening. 141 varieties were planted for LF2009 Stage 3.

Project 10: Stage 4 Trials (LF2004, LF2005, LF2006 & LF2007)

LF2004 series (Large Population Stage 4 Trial)

This trial was in the second ratoon crop at Legalega Research Station. The total rainfall received for the trial from September 2010 to October 2011 was 2533mm. The cane rows of the selected varieties were divided into four sections (replicates) and small mill cane samples were taken from five varieties and two standards. Four plots of 10 metres length was marked in the four sections for harvesting and determining cane yield. All the cane within the marked plot was harvested and weighed manually. The cane was 12.5 months old at the time of harvest. The unusual wetter conditions that prevailed over the duration of this trial contributed to the heavy lodging of all the varieties in this trial except for one variety LF04-448. The bio chemical data of the trial is presented in table 3. The cane (tch) and sugar (tsh) yield of the variety LF04-448 was higher and significantly different than all the other varieties and the standards Ragnar and LF91-1925. The LF2004 series trial was planted and evaluated under a new concept called as the large plot non-replicated trial and has ended. Conducting the trial under this concept has reduced the number of years of testing in the breeding program. One promising variety LF04-448 has emerged from this series that was initiated in December 2004. It took 7 years for the evaluation of this series starting from stage 1 and up to the large plot trial as compared to more than 12 years in the normal breeding program.

Table 3: Trial data of selected varieties from 2nd ratoon crop

Variety	Brix	Pol	%Fibre	%pocs	Purity	tch	tsh
LF91-1925	19.2	73.6	9.7	14.4	90.4	61	8.7
Ragnar	21.6	82.5	11.2	15.6	89.4	65	10.2
LF04-918	19.0	71.4	9.2	13.9	88.8	53	7.4
LF04-509	21.2	81.0	9.6	15.6	89.4	56	8.8
LF04-512	21.2	82.9	11.8	15.8	91.5	54	8.5
LF04-448	19.8	76.5	10.2	14.9	91.2	83	12.4

LF2005 series

Table 4 shows the results of plant crop and 1st ratoon crop from LF2005 series trial in Drasa. The trial has 11 varieties out of which 5 varieties have higher sugar yield (tsh) compared to the standards in 1st ratoon crop. Two varieties LF05-973 and LF05-1502 have done better than the standards in both the plant and ratoon crop. The trial is in 2nd ratoon and will be evaluated in November 2012.

Table 4: Trial data of LF2005 varieties from plant and 1st ratoon crop

Variety	Plant Crop				1st Ratoon Crop			
	tch	tsh	%pocs	%fibre	tch	tsh	%pocs	%fibre
Naidiri	128	20.3	15.9	9.4	113	17.5	15.5	11.7
Ragnar	113	18.4	16.2	9.6	96	15.1	15.7	12.8
Mana	123	18.3	15.0	8.2	112	14.7	13.1	11.7
Kaba	111	16.7	15.0	9.4	88	11.6	13.1	11.7
Test Varieties								
LF05-1160	98	16.1	16.4	8.8	93	12.3	13.3	11.5
LF05-1502	127	21.0	16.6	10.2	125	19.9	15.9	12.2
LF05-302	111	15.1	13.6	12.6	153	20.8	13.6	14.8
LF05-421	112	15.1	13.5	13.8	151	19.3	12.7	16.7
LF05-581	107	14.1	13.2	13.6	138	15.8	11.3	14.9
LF05-614	96	13.5	14.0	13.3	178	22.5	12.6	15.0
LF05-625	92	12.6	13.8	10.9	133	16.8	12.7	11.8
LF05-844	93	12.6	13.6	12.6	120	15.0	12.5	15.2
LF05-952	103	15.2	14.7	9.9	87	11.8	13.8	10.8
LF05-973	131	19.8	15.1	12.1	142	21.0	14.8	13.9
LF05-978	88	12.9	14.6	9.3	121	17.6	14.5	11.6

LF2006 series

Table 5 shows the results of plant crop from LF2006 series. The trial has 14 varieties and was planted in Drasa and Rarawai. Both the trials are in first ratoon and will be evaluated in October 2012.

Table 5: 2006 Series (Evaluation of plant crop)

Variety	tch	tsh	%pocs	%fibre
LF91-1925	249	32.7	13.2	11.5
Naidiri	207	30.8	14.8	10.2
Mana	193	23.0	12.1	9.1
Ragnar	143	20.3	14.2	10.2
Test Varieties				
LF06-525	230	32.0	13.9	10.9
LF06-529	221	31.2	14.2	10.6
LF06-320	222	30.1	13.7	12.7
LF06-591	221	30.1	13.5	12.0
LF06-353	208	29.1	14.0	8.9
LF06-336	218	28.4	13.1	12.7
LF06-372	186	28.1	15.1	11.8
LF06-499	186	26.6	14.6	9.8
LF06-539	186	26.1	14.1	10.1
LF06-426	192	25.9	13.3	10.4
LF06-165	191	25.0	13.1	14.6
LF06-566	186	23.9	13.1	12.3
LF06-433	159	22.7	14.4	11.9
LF06-381	142	18.0	12.6	11.3

LF2006 series (Large Population Stage 4 Trial)

Introduction

The large population trial was introduced in 2008 and the LF2006 series varieties were the second of the trials planted under this concept. The concept of the large plot trials is to hasten the variety evaluation and reduce the time by fast tracking any promising varieties.

Results and Discussion

This trial was planted in May 2010 at Legalega Research Station on a poor soil. There were 14 test varieties and two standards (Mana and Kiuva). These varieties were planted in multiple long rows that ranged from 140 to 300 metres in length. The total rainfall received for the trial from May 2010 to October 2011 was 2622mm. The cane rows of each variety were divided into four sections (replicates) and small mill cane samples were taken from all the varieties. Four plots of 10 metres length was marked in the four sections for harvesting and determining cane yield. All the cane within the marked plot was harvested and weighed manually. The cane was 17 months old at the time of harvest. The fibre per cent of four test varieties (LF06-165, 320, 336 and 566) were high and ranged between 14.3 to 16.2% but the sugar yield of these varieties were low and well below the standards. The cane and sugar yield of the variety LF06-353 was on par with the second best standard Kiuva. The variety LF06-539 had slightly better cane and sugar yield compared to the best standard variety Mana. The data from this trial is presented in the table 6. The trial will be further evaluated in the first ratoon crop and then only any promising varieties can be identified.

Table 6: LF2006 Trial analysis data

Variety	brix	pol	%fibre	%pocs	purity	tch	tsh
LF06-529	22.2	86.0	10.6	16.4	90.3	75	12.3
LF06-539	22.8	88.3	10.9	16.7	90.2	101	16.8
LF06-336	22.6	88.6	14.3	16.2	91.2	69	11.1
LF06-165	21.6	83.8	15.5	15.1	90.7	47	7.0
LF06-566	22.5	83.5	16.2	14.4	86.3	55	7.9
LF06-320	22.2	86.5	14.7	15.7	90.5	62	9.7
LF06-353	22.4	87.4	12.0	16.4	90.7	78	12.7
Mana	22.7	85.9	11.1	16.0	88.1	94	15.0
Kiuva	21.1	80.7	10.7	15.4	89.7	83	12.8
LF04-448	20.7	83.3	12.0	16.1	94.3	92	14.7

2007 Series (Planted)

Twenty-five varieties from LF2007 series were planted in Lautoka, Rarawai, Penang and Labasa. The trials were planted in May and June 2011. The plant crop will be evaluated between August and September in 2012.

Tissue Culture

Plant tissue culture comprises of *in vitro* techniques which are used to grow plants in a controlled environment. The main focus of sugarcane tissue culture at the Institute is to create genetic variability to produce improved sugarcane varieties which have high yield and resistance to disease. Leaf discs cultured on chemical medium containing 2, 4-D undergo changes in their genetic make-up and produce plantlets which are genetically unique from the parent plant. The other field of tissue culture that the Institute is in the process of establishing is rapid propagation which is used to produce quality seed material for planting.

ANALYTICAL LABORATORY & METEOROLOGY

Introduction

The Sugar Research Institute of Fiji had a well maintained daily climatological recording (DCR) station with a range of meteorological instruments at its head office in Lautoka and also maintains 3 other DCR's at the mill centres. The head office of the institute had been relocated to Drasa in May and efforts have been put in place to set up a new DCR station at Drasa. In addition there are forty-three rainfall recording sites within the cane growing areas which forward daily rainfall data to SRIF. Climatological stations are manned by observers who are required to make basic observations of temperatures (dry, wet, max, min) ,rainfall, amount of clouds, visibility, sunshine, wind direction, wind force, evaporation at 9am and maximum temperatures at 3pm daily. Meteorology readings for 2011 were not recorded from the DCR station at the head office from April onwards as there was loss of equipment due to theft and also due to non-availability of the instruments at the new site in Drasa. The daily climatological data plays a vital role in predicting weather forecast, producing climate summary, quarterly climate outlook for sugarcane belt area.

Summary of weather events

Weather and climate conditions varied significantly from one month to another. Moderate to strong La Niña conditions persisted during the first quarter, ENSO neutral conditions prevailed from May to August and weak to moderate La Niña conditions re-emerged in October and remained until end of 2011. The SPCZ was located to the southwest of its mean position for most of the year having significant impact on Fiji's rainfall pattern. Normal to wetter than normal conditions were experienced across the country. There were no cyclones that directly affected Fiji in 2011, though some parts of the country experienced strong winds and heavy rain as a result of tropical cyclones passing close to the Fiji Group.

Rainfall

The annual rainfall recorded at all the mill stations were above average and rain was recorded at all the stations and in all the months. The rainfall received at Lautoka and Rarawai mill were above average in all the months and the annual rainfall was 58 and 40% above the 41 year average respectively. At Penang mill the rainfall recorded in Jan, Feb, Apr, May, Aug, Oct and Nov were above average and the annual rainfall was 37% above the 41 year average. In Labasa mill the rainfall recorded in Jan, Feb, Mar, May, Jun, Jul, Aug, Oct and Nov were above average and the annual rainfall was 24% above the 41 year average. The rainfall received throughout 2011 was not good for cane growth and maturity as well above average rainfalls were recorded in the wet months and during the maturing phase. The rainfalls received from late May also affected the crushing of cane as farmers faced difficulty in harvesting and transporting their cane.

El Niño Southern Oscillation (ENSO)

ENSO is an irregular cycle of persistent warming and cooling of sea surface temperatures in the tropical Pacific Ocean. The warm extreme is known as ***El Niño*** and cold extreme, ***La Niña***. The Pacific experienced one of the strongest La Niña events in 2011. The 2010/11 La Niña event began during the second half of 2010, immediately after the 2009/10 El Niño event and developed into a moderate to strong event during 2011. Through April and May, the existent strong La Niña event weakened but the atmospheric indicators, especially SOI, remained strongly positive during this period and remained consistent. During May, the event finally ended with all indicators reaching neutral levels and in June, persisting through July. During August, weak La Niña conditions re-emerged. The re-emergence of the 2010/11 La Niña continued during August and September. A weak La Niña was re-established in the equatorial Pacific by December. The presence of moderate to strong La Niña in the region impacted the rainfall over Fiji. The main rain producing systems, the SPCZ was located close

to the country; hence, most parts of the country experienced enhanced rainfall. The formation and distribution of tropical cyclones was displaced to the southwest, thus, fewer cyclones threatened the country during the cyclone season.

Relative Humidity

Relative Humidity at 0900hrs were generally above long term average in Lautoka mill for January, April and from September to December below average for February, March and May.

Sunshine

The sunshine recorder was stolen in May and sunshine hours were only recorded from January to April and it was generally below long term average for these months.

Earth Temperature

The earth temperatures at all depths (5cm, 10cm & 20cm) were slightly below the long time mean values for the months recorded. The earth thermometers were vandalized in May and no temperatures were recoded from June onwards.

Soil Moisture

The P:E ratio was only calculated for January which had a value of 1.14 that falls in the Moderate - sufficient moisture for moderate growth. Soil moisture status could not be determined for all other months due to damage and theft of raised and sunken pan.

Air Temperature

The daytime air temperatures were above average and night-time below average for Lautoka mill during January to December 2011. The highest maximum temperature recorded was 33.6°C for the month of November and the lowest minimum recorded was 15.0°C in May 2011.

Table 1: Rainfall (mm) for all mills 2011

Mills	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Lautoka Mill													
Monthly Rainfall	560	425	407	288	275	123	122	131	92	112	275	306	3115
No. of rain days	27	21	22	9	13	6	5	7	18	13	21	20	182
41yrs Avg (1971-2011)	372	307	308	190	89	70	56	73	76	102	141	190	1973
% of average	151	139	132	152	311	175	217	178	122	110	195	161	158
Rarawai Mill													
Monthly Rainfall	738	393	421	218	149	124	92	114	41	268	299	176	3032
No. of rain days	16	10	14	9	6	7	6	9	6	10	13	12	118
41yrs Avg (1971-2011)	383	347	372	204	94	81	45	68	76	108	158	237	2172
% of average	193	113	113	107	158	153	206	167	54	249	189	74	140
Penang Mill													
Monthly Rainfall	695	592	322	278	385	75	39	99	44	185	388	171	3272
No. of rain days	27	23	23	20	21	14	7	14	12	10	18	23	212
41yrs Avg (1971-2011)	424	341	376	253	157	97	54	72	89	110	160	251	2383
% of average	164	174	86	110	246	77	73	137	50	168	242	68	137
Labasa Mill													
Monthly Rainfall	698	476	362	84	198	89	100	81	60	161	314	244	2865
No. of rain days	24	23	17	15	18	12	19	8	8	10	20	19	193
41yrs Avg (1971-2011)	409	353	360	245	113	78	55	50	76	117	188	261	2304
% of average	171	135	101	34	176	114	182	164	79	138	167	93	124

Table 2: Rainfall data (mm) for Lautoka, Nadi and Sigatoka Districts 2011													
Sector	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
Drasa	566	332	453	288	275	123	122	183	134	160	193	279	3108
No. of raindays	16	12	17	9	7	3	4	9	5	7	10	7	106
Saweni	370	361	374	398	250	88	81	97	32	111	227	129	2518
No. of raindays	12	11	15	11	6	3	3	6	5	6	7	7	92
Natova	443	458	377	266	251	101	99	110	74	171	234	276	2860
No. of raindays	12	12	16	11	10	3	3	6	6	7	9	10	105
Legalega	388	173	342	239	156	77	92	66	66	176	163	250	2184
No. of raindays	13	10	15	9	10	3	4	6	4	8	9	14	105
Meigunyah	412	115	352	277	259	69	98	84	72	210	190	270	2406
No. of raindays	14	8	14	10	11	3	4	8	4	7	10	11	104
Navo	447	405	377	405	285	115	175	98	142	343	348	446	3585
No. of raindays	16	11	17	10	10	5	4	9	7	11	8	15	121
Malolo	480	401	380	404	275	117	176	100	25	370	373	437	3537
No. of raindays	16	11	17	10	7	5	4	9	5	12	9	15	120
Nawaicoba	499	200	483	350	340	128	138	81	149	250	406	503	3529
No. of raindays	12	7	20	16	13	7	5	8	6	12	11	17	134
Yako	447	200	535	352	180	65	143	74	169	192	163	254	2774
No. of raindays	12	7	22	11	5	3	3	6	4	10	9	12	104
Lomawai	204	439	230	325	345	101	170	56	83	107	84	209	2353
No. of raindays	12	14	16	11	12	5	6	6	6	6	2	4	100
Cuvu	121	186	155	187	247	94	159	77	77	143	49	482	1976
No. of raindays	13	9	11	12	13	6	7	6	5	6	3	54	100
Olosara	131	198	196	178	242	126	157	61	84	117	46	54	1590
No. of raindays	9	8	13	10	12	6	5	5	4	6	3	1	82

Table 3: Rainfall data (mm) for Rarawai Mill 2011													
Sector	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
Varoko	721	350	232	229	133	160	76	118	40	144	192	176	2571
No. of raindays	15	9	11	10	6	8	7	10	6	9	11	13	115
Mota	809	434	365	278	177	152	165	180	74	267	317	322	3540
No. of raindays	17	9	9	10	7	6	5	11	5	9	12	11	111
Naloto	771	355	416	217	244	177	175	280	166	315	274	398	3788
No. of raindays	15	8	8	8	6	6	4	11	6	9	11	11	103
Rarawai	730	365	317	218	149	123	92	107	36	264	307	166	2874
No. of raindays	17	14	12	9	7	7	6	8	6	12	15	13	126
AES - Rarawai	738	393	421	218	149	124	92	114	41	268	299	176	3032
No. of raindays	16	10	14	9	6	7	6	9	6	10	13	12	118
Koronubu	731	387	373	271	139	126	128	115	70	246	287	374	3247
No. of raindays	15	10	11	11	7	7	7	10	5	9	15	16	123
Veisaru	577	246	175	231	126	85	44	96	59	171	216	119	2145
No. of raindays	15	13	12	11	6	7	8	8	7	12	16	12	127
Varavu	578	294	212	202	96	131	91	70	51	132	170	120	2147
No. of raindays	13	11	9	10	5	7	6	6	6	12	15	12	112
Tagi Tagi	494	275	165	290	185	89	77	171	66	91	220	148	2271
No. of raindays	16	7	9	8	5	5	6	7	5	7	11	11	97
Yaladro	695	423	122	205	183	67	92	64	63	121	124	203	2362
No. of raindays	17	7	10	8	5	6	7	8	5	8	11	10	102
Drumasi	837	491	149	235	204	77	142	96	80	133	167	241	2852
No. of raindays	17	7	8	8	5	7	7	9	6	8	11	9	102

Table 4: Rainfall data (mm) for Penang Mill – 2011													
Sector	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
Nanuku	654	452	159	236	134	77	70	132	34	74	138	76	2236
No. of raindays	10	12	9	11	4	4	2	5	3	4	8	5	77
Malau	659	592	322	278	385	75	39	99	44	185	389	181	3246
No. of raindays	27	23	23	20	21	14	7	14	12	12	18	23	214
Ellington I	90	147	76	89	76	28	40	46	55	67	94	27	836
No. of raindays	11	21	18	15	9	8	10	10	13	9	9	1	134
Ellington II	605	476	192	165	305	12	101	71	113	132	227	250	2647
No. of raindays	22	19	14	15	20	5	8	6	10	12	12	14	157

Table 5: Rainfall (mm) data for Labasa Mill - 2011													
Sector	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
Rokosalase (Solove)	499	484	239	220	390	101	67	30	46	157	167	204	2605
No. of raindays	17	20	15	10	22	17	11	7	6	20	20	22	187
Naravuka (Bulivou)	466	503	247	341	389	126	54	73	78	136	413	430	3258
No. of raindays	18	17	12	15	19	10	4	3	6	13	16	11	144
Natua (Seaqaqa)	804	580	316	268	307	77	70	60	102	261	380	470	3697
No. of raindays	26	16	18	11	16	12	9	6	9	11	14	15	163
Seaqaqa Sub. St.	566	427	221	154	404	44	50	48	58	109	277	316	2674
No. of raindays	23	22	21	17	22	17	24	8	18	14	18	10	214
Waiqele	693	590	361	63	189	65	101	59	42	110	237	283	2792
No. of raindays	18	18	13	10	13	6	8	9	7	6	14	14	136
Wailevu	652	451	344	123	231	49	54	26	29	167	202	242	2570
No. of raindays	18	16	11	10	11	4	6	2	5	9	13	12	117
Vunimoli	625	565	470	137	159	60	93	64	102	101	472	393	3240
No. of raindays	21	24	19	14	17	10	17	13	7	11	20	19	192
Korowiri (Labasa M)	698	476	362	84	198	89	100	54	60	161	314	244	2837
No. of raindays	25	23	17	14	18	12	19	8	8	10	20	19	193
Nagigi (Bucaisau)	719	413	404	119	258	95	100	65	31	97	362	307	2970
No. of raindays	18	14	16	11	14	6	10	8	7	5	12	12	133
Daku	619	614	288	119	187	110	93	86	66	60	544	229	3015
No. of raindays	24	21	16	13	19	11	17	8	4	7	5	15	160
Kuru Kuru (Daku)	608	631	265	129	163	136	47	84	69	91	555	237	3015
No. of raindays	23	21	15	10	12	12	6	7	4	5	18	13	146
Wainikoro	581	559	274	109	237	98	48	119	57	59	361	244	2745
No. of raindays	16	17	14	8	14	6	8	10	5	5	17	11	131
Vunivutu	562	522	294	153	210	76	81	44	38	75	411	227	2169
No. of raindays	16	18	14	14	15	12	9	13	8	12	23	17	171
Papalagi	611	424	271	107	222	57	26	24	36	123	605	231	2735
No. of raindays	16	11	10	12	18	10	7	9	4	19	16	20	152

Table 6: Meteorological data for Sugar Research Institute of Fiji, Lautoka 2011

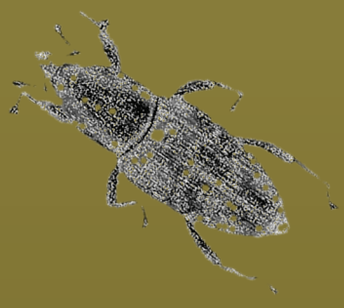
Measurements	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Relative Humidity	79.0	76.7	76.1	76.4	72.8				72.6	72.1	72.3	71.8
42yrs Avg (1970-2011)	75.1	77.0	77.0	75.0	74.0				69.1	66.1	70.1	72.0
Air temperature (°C)												
Mean maximum	30.3	31.0	31.5	31.0	30.2				29.5	31.6	31.4	31.6
Mean Max 42 yrs Avg (1970-2011)	31.6	32.0	31.3	31.1	29.9				29.2	30.6	30.8	31.1
Mean minimum	23.3	23.2	23.7	23.1	22.6				21.4	22.4	22.7	23.0
Mean Min 42 yrs Avg (1970-2011)	23.6	23.5	23.9	23.6	22.1				21.1	26.0	22.7	23.2
Mean	26.8	27.1	27.7	27.1	26.4				25.5	27.0	27.1	27.3
Highest maximum	32.4	32.6	32.9	32.6	33.0				32.6	31.6	33.6	32.7
Lowest minimum	20.2	21.1	22.1	21.1	15.0				28.7	25.9	21.1	20.1
Evaporation (mm)												
Sunken pan	94.3											
Sunken Pan: 42 yrs Avg (1970-2011)	128.4											
Raised pan	405.2											
Raised Pan: 42 yrs Avg (1970-2011)	290.5											
P:E ratio	1.4											
Earth temperature (°C)												
5 cm	28.2	28.0		28.2	26.7							
10 cm	28.0	28.0	28.3	28.0	26.8							
20 cm	28.7	28.9	29.2	28.7	28.1							
100 cm	21.8	22.1	22.5	22.1	22.4							
42yrs Avg (1970-2011): 5cm	29.1	29.4		28.0	27.2							
42yrs Avg (1970-2011): 10cm	28.6	28.9	28.5	27.9	27.2							
42yrs Avg (1970-2011): 20cm	29.0	29.9	29.4	28.9	28.5							
Sunshine (hours) –mean	4.4	6.7	6.0	7.0								
42yrs Avg (1971-2011)	5.6	7.8	6.2	6.9								

Note: sunken and raised pan damaged in February and stolen in end of April together with the sunshine recorder, earth thermometers vandalized in May and station relocated to Drasa in mid-May. June- August readings (mean, max, dry, wet and air temperature) recorded by new organization but no data available. Thermometers reinstalled at new site in September.

Table 7: Transeau Ratio (Precipitation/Evaporation) and Moisture Status of Soil 2011

P:E	Moisture status	Months
<0.25	Drought conditions	
0.26-0.50	Very dry - limiting moisture. Slow growth.	
0.51-1.00	Dry - limiting moisture. Slow growth.	
1.10-2.00	Moderate - sufficient moisture for moderate growth.	January
>2.00	Good - sufficient moisture for good growth.	

Note table incomplete due to damage and theft of raised and sunken pan



CROP PROTECTION

Fiji Leaf Gall Disease (FLGD)

Fiji leaf gall is widespread in Fiji on the most popular commercial variety, Mana and in the garden cane Duruka. The disease is caused by a reovirus and transmitted by the leafhopper *Perkinsiella vitiensis.* This is the most economically important disease of sugarcane in Fiji. The resistance screening of the new clones (LF2008 series) were commenced in March with hopper survey and hopper collection from the commercial cane field. The insect that were collected from the field was bred on infected Fiji 10 (*Erianthus maximus*) for the nymphs. After 4-5 weeks the viruliferous nymphs appeared in those cases in which adult hoppers were kept. The infected nymphs were released on the 75 tested clones and 10 recommended standards inside the insectary for 14 days to transmit the Fiji virus on the test clones. Before taking out the plant from the insectary, the insecticide was used to kill all the infected nymphs. The test clone were planted in two rows outside the insectary and inspection started for symptom of Fiji disease galls on the under surface of the leaf after 21 days. The inspection was done for 100 days.

Table 1: Number of clones screened for Fiji leaf gall disease

Series screened	Clone Resistance (Ratings)		
	Resistant (1 -3)	Moderate (4-6)	Susceptible (7)
LF2008	51	22	2

Table 2: LF2008 rating list

Screened Ratings	No. Of Clones
1	34
2	6
3	11
4	12
5	7
6	3
7	2

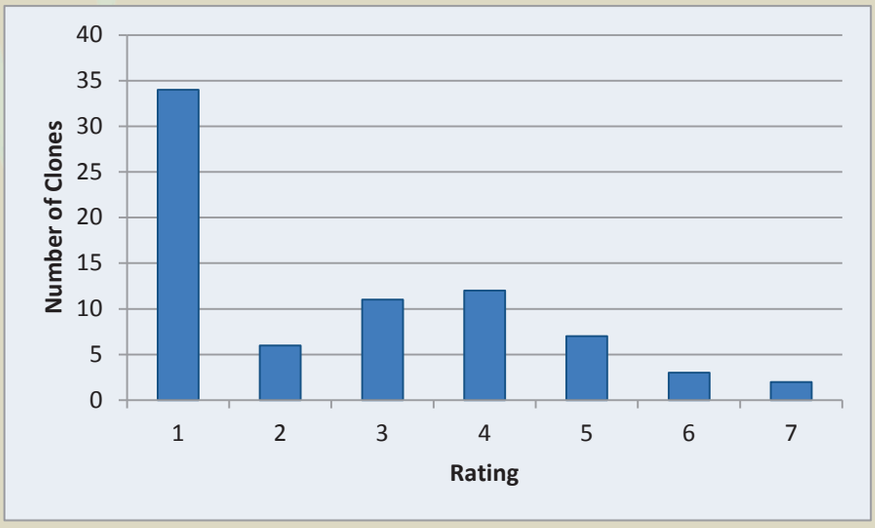


Figure 1: Summary - Fiji leaf gall resistance trial of 75 clones

Job's tear as host of FDV

A prelimary study was conducted to determine whether Fiji leaf gall can be transmitted to Job's tear (wild maize/corn) and whether *Perkinsiella vitiensis* can complete its life cycle on this species. In this experiment, the same procedure was applied as Fiji leaf gall screening. Job's tear, Mana and Kaba were planted for screening. There was no leaf gall observed under the leaf surface of these plants. The job's tear leaf were forming wrinkle, showing hollow under the leaf surface and giving a strong unpleasant smell. The adult hoppers were collected from the commercial cane field and covered with Nytrel cage on healthy plants of Job's tear, Mana and Kaba to complete their life cycle. After 15 days the number of egg puncture were counted on midrib, after 25 days the number of nymphs were counted and after 40 days the number of adult hoppers were counted. The result of the experiment showed that hoppers were not able to complete their life cycle successfully on job's tear plant compared to Mana and Kaba plants. On 25 days it was found that nymphs were dead on job's tear.

Disease Control

Roguing was carried out as per set procedures and 1 Km radius checks were made when any diseased plant was found. A total of 7,578 ha of cane (962 ha plant crop and 6,616 ha ratoon crop) were inspected in 2011 for major diseases. The only major disease incidence recorded during the year was Fiji disease in all the 4 mill areas. A total of 1038 infected stools were rogued out during 2011. The highest number of infected stools was removed in Nadi district (680 stools). Fiji disease has been on the increase in the commercial cultivar, Mana. In year 2009, the roguers of Lautoka, Nadi and Sigatoka district used the GPS to mark the way points of disease infected stools before removing. The marked way point is used to map the disease area on Google earth for further reference and have a better monitoring of the major disease.

Table 3: Summary of rouging inspections in 2011

Mill District	No. of Farms Inspected	Area Rouged (Ha)		No. of FLGD stools Rouged
		Plant	Ratoon	
Lautoka	327	59.31	672.7	133
Nadi	690	140.96	1948.06	680
Labasa	633	543.63	2677.9	17
Sigatoka	418	91.82	721.24	192
Rarawai/Tavua	187	78.42	403.93	8
Penang	211	48.1	192.52	8
Total	2466	962.24	6616.35	1038

Cane Weevil Borer

Cane weevil borer (*Rhabdoscelus obscurus)* is a sugarcane pest which chews the inner tissues and reduces the cane and sugar yield of commercial cane. A two year project is currently being carried out on Integrated Pest Management of the Sugarcane Weevil Borer in Fiji in collaboration with BSES. Split cane traps and pheromone traps were used to monitor trends in sugarcane weevil borer populations in commercial sugarcane fields of Viti Levu from October 2010 – December 2011. Six farms were selected in each mill area of Viti Levu for split cane trap and 4 farms were selected in Lautoka mill area for pheromone traps. Adult borers appeared in all the fields, population increased gradually in January-April and declined in May-August, followed by another increase in September-November.

Table 4: Borer population & borer damage in Split cane trap in 2010-2011

Mill region	Lautoka	Rarawai	Penang
No. of farm	6	6	6
Variety	Mana	Mana	Mana
Avg. no. of male borer/farm	1226	843	628
Avg. no. of female borer/ farm	1295	1019	740
Avg. cane yield (tch)/farm	72.24	52.15	68.5
Avg. no of stalks sampled/farm	100	100	100
Avg. % of bored stalk/farm	32.83	69.5	61.66
Avg.% of length (cm) damage stalk/farm	3.9	5.4	9.7

Pheromone mass trapping is an effective method of collecting and monitoring the adult borer's population densities. The most effective method for capturing adult borers was using

the water trap containing pheromone. The water trap is a 20 cm-diameter pot with a plastic bag inserted to hold water with pheromone lures and cane pieces held together in a plastic container suspended over the water from a square of wire mesh. Results also showed that adult borers in adjacent fields are able to sense the lures and migrate into treated fields. However, the pheromone traps mainly attracted female borers all year round. No clear results were available but it is evident that the borers are more attracted to the pheromone during November, January and March. This may be due to the odour emitting from non-harvested stumps and leftover stalks during the cane harvesting season which heightens the effect of pheromone to attract borers.

Table 5: Borer population and borer damage in pheromone trial in 2010-2011 in Lautoka mill region.

Farm	F1	F2	F3	F4
no. of male borer/farm	1031	1055	1567	1791
no. of female borer/farm	1169	1303	1859	2264
Cane yield (tch)	72.14	104.4	57.5	108.89
No. of stalks sampled/farm	100	100	100	100
%of bored stalk/farm	24	26	27	44
% length of damage stalk/farm	2.7	3.2	3.1	6.5

Snapshot Field Audit of damage caused by Cane weevil borer to Sugarcane in Lautoka Mill Area

The snapshot field audit at Drasa, Lautoka, Natova, Meigunyah, Saweni, Legalega and Nawaicoba sectors shows that approximately 98% of the farms had Mana variety which was in other ratoon crop. Two farms had a different variety which were Kaba and an unknown variety. Earlier preliminary studies have shown that this pest has preferential feeding on Mana variety, thus it is important to reduce composition of Mana in each farm by planting other varieties.

Field Survey

The objective of SRIF snapshot field audit was to assess the impact of cane weevil borer damage on sugarcane in the seven sectors in Lautoka Mill area. The inspection results showed that Meigunyah sector had the highest % infestation compared to the other sectors. The result of the preliminary study indicates that there is a greater decline in pocs for Natova than Saweni even though the % infestation is approximately same. The % intensity of infestation is more in Natova than Saweni even though the % infestation is about the same. This implies that decline in %pocs depends on the % intensity of infestation not on % infestation. Similarly, the sectors (Lautoka and Legalega) have the same % infestation but different % intensity of infestation

Table 6: Mean % infestation and % intensity of infestation of 6 farms per sector

Sector	% infestation	% intensity of infestation	% pocs (uninfected)	% pocs (infected)	% pocs (difference)
Natova	16.3	2.1	13.1	12.3	0.8
Saweni	16.7	1.4	13.3	12.9	0.4
Lautoka	23.0	2.8	11.6	11.1	0.5
Meigunyah	36.7	6.7	10.9	7.8	3.1
Drasa	27.3	3.5	12.7	12.7	0
Legalega	22.8	1.6	12.5	12.0	0.5
Nawaicoba	26.0	2.8	10.2	9.8	0.4

The highest % infestation and % intensity of borer damage was found on flat, follows undulating and the lowest was damage was found on hilly terrain. The damage caused by cane weevil borer affects the quality of cane by decreasing the pol, brix, %pocs and increasing % fibre. This may be due to the grub or larval stage of the sugarcane beetle chewing fresh tissue and leaving dry and dead fibrous tissue after ingestion. The ingestion of internal tissue also renders the rind dry and hard.

Biochemical Analysis

The results of the field audit in seven sectors of Lautoka shows that, when all the stalks are infected to varying degrees of infestation (infected cane), the %pocs reduces on an average by 0.8% in comparison to clean cane (uninfected cane) from the same farms. Generally, there is an increase in fibre of the infected cane by 0.1% from the uninfected cane. This is due to the larvae as they burrow into and feed on the inner tissue. There is a 0.1-0.4% increase in the fibre of the infected cane compared with the uninfected cane in all seven sectors. The small mill data from Meigunyah sector showed 36.7% infestation and there is a decline in pocs by 3%. The farms on the flat terrain showed decrease of about 1.0% pocs. The farms on the undulating terrain showed decrease of about 0.2% pocs. The farms on the hilly terrain showed decrease of about 1.3% pocs. According to the small mill analysis, %pocs is not dependent on the terrain but the %intensity of infestation depends on terrain. Overall results showed that there is negligible difference in %pocs within different terrain (flat, undulating & hilly) of the infected cane.

Table 7: Results of Biochemical Analysis of Uninfected (U) and Infected (I) Cane

Sector	U/I	brix	pol	% fibre	%pocs	purity
Meigunyah	U	18.5	61.1	9.4	10.9	77.8
Saweni	U	20.7	73.0	10.1	13.3	82.8
Lautoka	U	19.3	64.0	10.0	11.6	79.4
Drasa	U	21.0	72.2	11.4	12.7	80.4
Legalega	U	19.1	67.5	9.7	12.5	83.3
Natova	U	19.9	70.9	10.1	13.1	83.5
Nawaicoba	U	20.8	63.9	11.3	10.2	71.2
Average		**19.9**	**67.5**	**10.3**	**12.0**	**79.8**
Meigunyah	I	16.9	49.2	9.8	7.8	67.3
Saweni	I	20.5	71.3	10.2	12.9	81.3
Lautoka	I	19.1	64.6	10.1	11.1	78.0
Drasa	I	21.1	72.0	11.0	12.7	79.9
Legalega	I	18.6	65.0	9.8	12.0	82.4
Natova	I	19.6	68.0	10.4	12.3	81.5
Nawaicoba	I	20.9	62.7	11.7	9.8	69.2
Average		**19.5**	**64.7**	**10.4**	**11.2**	**77.1**
Difference	**U - I**	**0.4**	**2.8**	**-0.1**	**0.8**	**2.7**

Nematology

In November 2010, the two nematodes management field trial was set-up at Drasa estate on clay sand silt soil on plant crop in field 17 on Kiuva variety and on other ratoon crop in field 11 on Kaba variety. This trial was conducted to evaluate the impact of various management practices to minimize nematode damage on sugarcane. Soil samples were collected from both the trials for nematodes population count and for soil nutrient analysis. The application of different ratios of distillery effluent and intercropping of cowpeas had increased the population density of nematodes. The treatments in this trial were:

Table 8: Treatments for trial 1 and 2	
Trial 1	**Trial 2**
T1 - Control	T1 - Control
T2-1:10 distillery effluent single @50day	T2 - Cowpeas
T3-1:10 distillery effulent double @100days	T3 - 1:10 distillery effluent
T4-1:20 distillery effulent single @50days	T4 - 1:20 distillery effulent
T5-1:20 distillery effulent double @ 100days	

Table 9: Nematodes population of both the trials.

Trial 1 population of different nematodes on plant crop of Kiuva

Treatments	Lesion	Rootknot	Spiral	Reniform	Ring	Daggar	Lance	FLG	Pin	Stubby
T1	1500	690	5030	4830	1590	0	40	13255	10	60
T2	2605	775	8070	6960	2000	20	85	11690	170	0
T3	2310	715	7180	5890	1943	16	125	11435	0	0
T4	2395	685	6550	6110	2260	5	245	11725	170	10
T5	2753	925	8530	7070	2545	10	140	11990	30	0

Trial 2 population of different nematodes on other ratoon crop of Kaba

Treatments	Lesion	Rootknot	Spiral	Reniform	Ring	Daggar	Lance	FLN
T1	2300	610	5370	3860	10	30	260	11520
T2	1650	1040	4540	2870	20	60	270	13390
T3	2210	1350	5720	3660	40	20	180	12700
T4	1930	820	5140	3600	10	10	120	9840

A total of 9 genera of Plant Parasitic Nematodes (Lesion, Rootknot, Spiral, Reniform, Ring, Stubby, Lance, Pin and Daggar) were found in the soils of sugarcane. Free Living Nematodes were observed in high numbers. Amongst them Spiral and Reniform nematodes were found in all the treatments. The spiral and Reniform (*R. parvus*) nematodes do not cause economic losses. The most destructive nematodes to sugarcane are Root-knot, Dagger and Stubby in sandy soils. The large numbers of FLN is a good sign, contributing naturally to the biological control of the plant parasitic nematodes in this trial.

Table 10: Biochemical data of both the trials

Trial 1 Field 17 on Plant crop

Treatment as in table 8	**tch**	**tsh**	**Brix**	**%Fibre**	**%pocs**
T1	96.7	12.8	19.7	11.1	13.3
T2	104.5	14.1	20.1	11.2	13.7
T3	94.8	13.0	20.2	10.6	14.0
T4	102.4	13.6	19.7	10.8	13.3
T5	89.5	12.6	20.5	11.3	14.2

Trial 2 Field 11 on other Ratoon crop

Treatment as in table 8	**tch**	**tsh**	**Brix**	**% Fibre**	**%pocs**
T1	78.1	11.7	20.6	11.0	15
T2	68.8	10.4	20.4	11.1	15.1
T3	75.0	11.3	20.5	10.7	15.1
T4	73.3	10.9	20.3	10.9	14.9

Preliminary results indicate that the application of distillery effluent in field 17 resulted in increased germination, tillering and plant height. The cane yield (tch) increased in T2 & T4 of plant trial. The results of the present study shows that single application of distillery effluent at 50 days have effect on cane yield. In field 11, the treatments were applied during the establishment of the trials. In this trial the distillery effluents do not have much impact on cane yield. In control the yield is high (difference of 3.1). The soil was compact in this trial. Conclusive results will be obtained when both trials will be harvested for 2nd time respectively. These trials are currently ongoing.

CROP PRODUCTION

Seed cane nursery program

The objective of this project was to improve the quality of seed cane planted in commercial farms. It is anticipated that the nurseries would provide seed cane that is disease free, varietally pure and has good germination capability. The importance of having a seed cane nursery is that farmers can get seed cane from a healthy source such as a certified seed cane nursery. A program of seed cane production using hot water treated cane setts and well maintained with regards to nutrition, weed control, disease inspection and appropriate irrigation when needed would have resulted in good quality seed cane. Heat treatment for seed cane production continued in the 2011 season. A total of 29.3ha were planted in the SRIF administered estates in 2011 on mother plots and distribution plots. The uptake of seed cane from the estates is improving gradually as farmers realize the benefits of planting seed cane from approved plots.

Table 1: Uptake of seed cane from HWT seed bed

Year	Total seed cane available (tonnes)	Total seed cane taken (tonnes)	% uptake
2010	4368	176.45	4.0
2011	3776	237.46	6.3

The reasons for the very low uptake of seed cane from the Estates were due to the LA NINA effects experienced in 2011 with a total rainfall of more than 3000mm. At the end of 2011, approximately 2800t was available for 2012 planting.

Weed Management for Plant Crop

A weed management trial was initiated in a plant crop where all the plots were treated with pre-emergence weedicide Diuron 80 at the rate of 5kg/ha. A weed survey was conducted five (5) weeks after pre-emergence spraying and the results are summarized in table 2. Following the survey five different post emergence treatments (Table 3) was applied to the plots. Before the survey for the efficacy of the post emergence treatments could be conducted, heavy rain and flooding damaged the field and the trial was subsequently abandoned.

Table 2: Pre emergence weed survey

	Types of weeds			Total all weeds
	Grass	Broadleaves	Vines	
Average/plot	29.95	118.45	21.84	170.24
% of total	17.52	69.64	12.84	100

Table 3: Post emergence treatments (T1-T5)

Treatments	Target Weed
T0 – pre emergences Diuron 80 on all plots (5kg/ha)	Grass
T1 – Diuron 80 (5kg/ha)	Grass
T2 – Karmex (2.4kg/ha) + Amine 720 (2.4L/ha)	Grass & Broad leaves
T3 – Diuron 80 + E40 (3kg + 3L/ha)	Grass and Broad leaves
T4 – Karmex + E40 (3kg + 3L/ha)	Grass ,Broad leaves and Creepers
T5 – Diuron 80 + Amine 720 (3kg + 2.4L/ha)	Grass, Broad leaves and creepers.

The results of the pre-emergence weedicide application indicate Diuron 80 to be more effective on Grass than on Vines and Broadleaves. The results of the pre-emergence weed survey allow for specific formulation of post-emergence treatment to control fields which are predominantly covered with either, Grass, Broadleaves or Vines. In this trial the fields showed a dominance of broadleaves and a specific weedicide treatment for better and cost

effective weed control could be adopted. The post-emergence treatment was applied and before the first survey could be conducted, the field was damaged by floods. The following recommendations are made from this trial

- The efficacy of Diuron 80 as a pre-emergence effective against grass and as the first line of weed control, before dealing with broadleaves and vines.
- Effectively covers a broad spectrum of weeds and creates conditions conducive to application of cost effective Preventative (mechanical tillering) and Curative (use of weedicides) weed control practices.
- Allows the selective formulation and application of post-emergence weedicide to control the resulting emergence of broadleaves and vines.
- The trial also creates a system for the residual effect of reducing the weed seed bank if continued into ratoon weed management practice.

This trial should be conducted again in other locations.

Geographic Information System

Sector Mapping

The mapping of sector based thematic mapping was continued with the Lovu sector and isolation of Lautoka and Rarawai sectors. The geo-coded farms were clipped with the production data available to identify the active farms. This also allowed the identification of the production patterns over the sector geographical area. The production data gave an indication of the spatial distribution of the production level across the sector. Initial conclusion that could be made from the distribution mapping that the production level did not have a set pattern as they were spread over the sector according to the tonnes total.

Sugar Industry Project

A major industry wide project was initiated which is 'The Development of a Decision Making Tool for the Sugar Industry of Fiji'. It involves all the sugar industry stakeholders namely Sugar Research Institute of Fiji, Sugar Industry Tribunal, Fiji Sugar Corporation, Sugar Cane Growers Council, Ministry of Sugar in collaboration with Belgium Government. Belgium based I-Mage Consult is the main collaborator in this initial setup phase. The pilot projects were identified to be Drasa, Lovu and one sector to be selected in Vanua Levu for the 2012 trial run. The work on the Drasa sector finished in November and it involved the mapping of all the farms with the attributes mainly focusing on the cane variety and the ratoon. Lovu sector is 90% complete. The main objective of this project is to provide the stakeholders with detailed information on sugarcane in all the sectors of Fiji. The development of a Web-based application for the project will enable the dissemination of the information to all the interested parties. The plot boundaries were digitized according to satellite image and field data. Two images are used to cover Drasa and Lovu sectors:

KOMPSAT satellite image: False colors composition (RGB: PIR/R/G) compiled from KOMPSAT 4 band satellite image. It covers the major part of Lovu sector (all lease of Love are covered) and the major part of Drasa sector.

QuickBird satellite image: True color composition (RGB:R/G/B) complied from QuickBird 3 band mosaic satellite imagery. It covers the North East part of Lovu sector.

A working Data Management tree was designed to allow the development of a geo-database for the project which will follow for all the sectors. Data was organized into a geodatabase file called 'Plot_mapping'. This allows defining a default projection system and running a topology check and this directory hierarchy was created at the beginning of the project using ArcCatalog.

Part of Drasa Sector Pilot project on KOMPSAT satellite imagery background - figure 1 & 2.

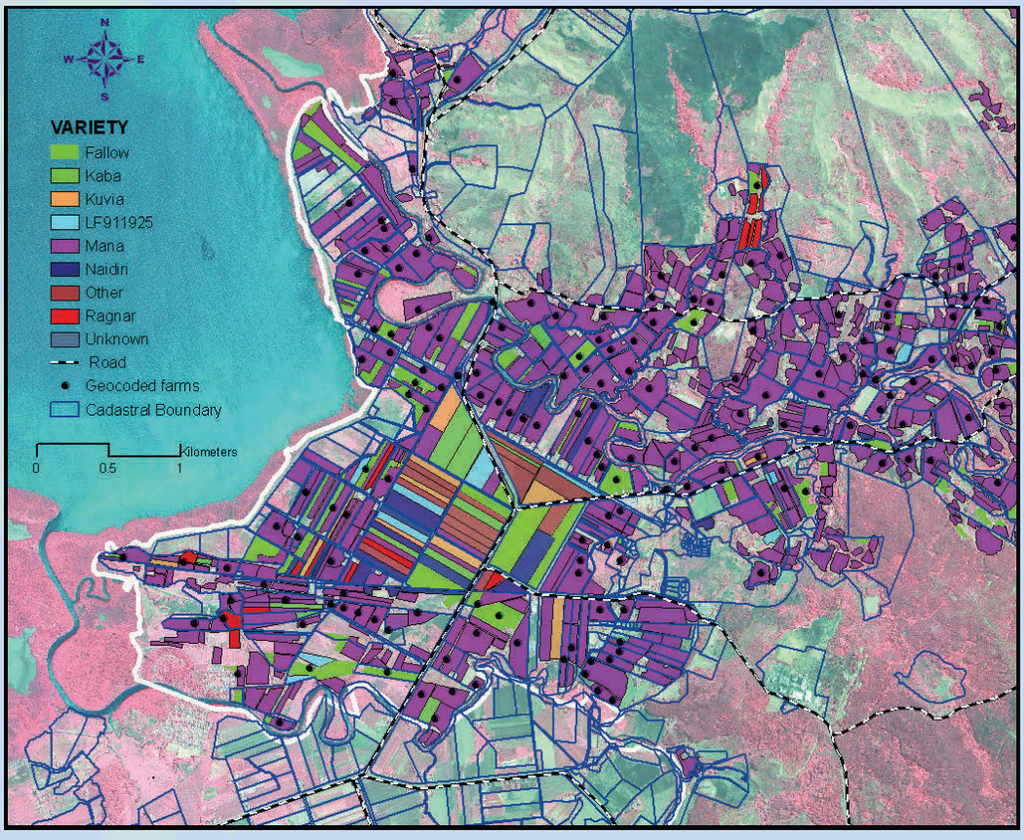


Figure 1: Part of Drasa Sector Cane Variety Distribution

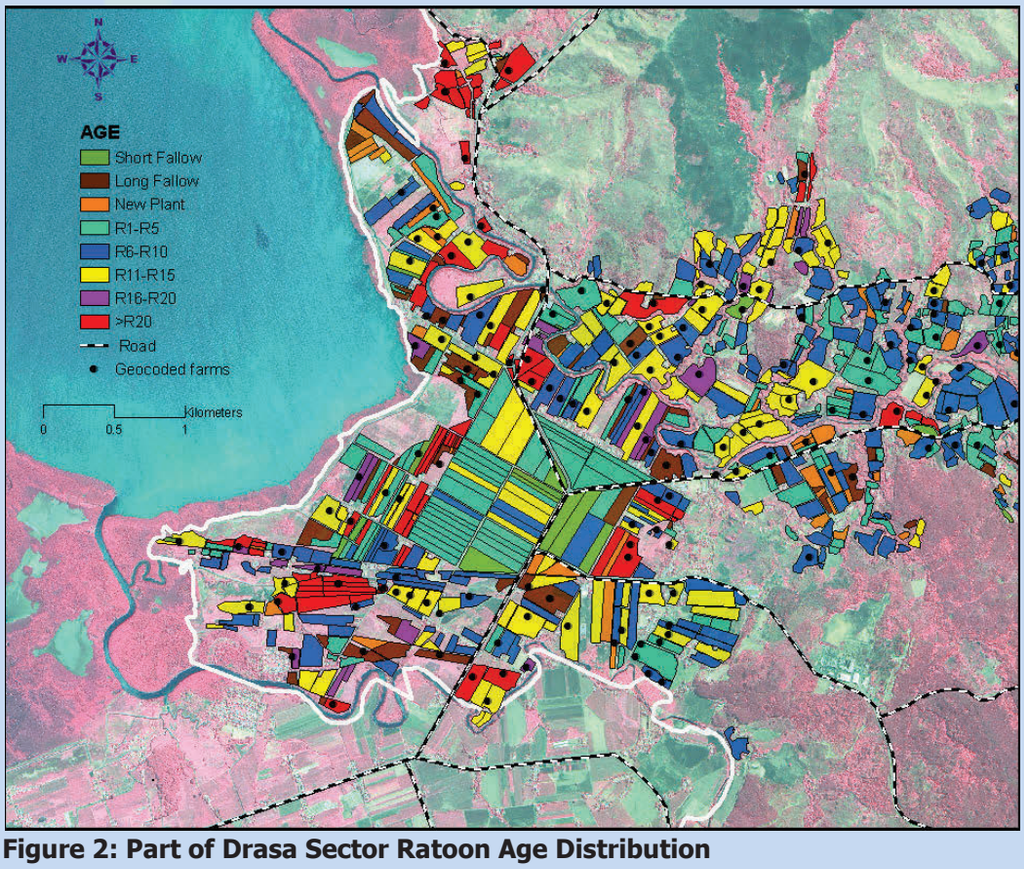


Figure 2: Part of Drasa Sector Ratoon Age Distribution

Lovu Sector work in progress on QuickBird satellite imagery background – figure 3 & 4

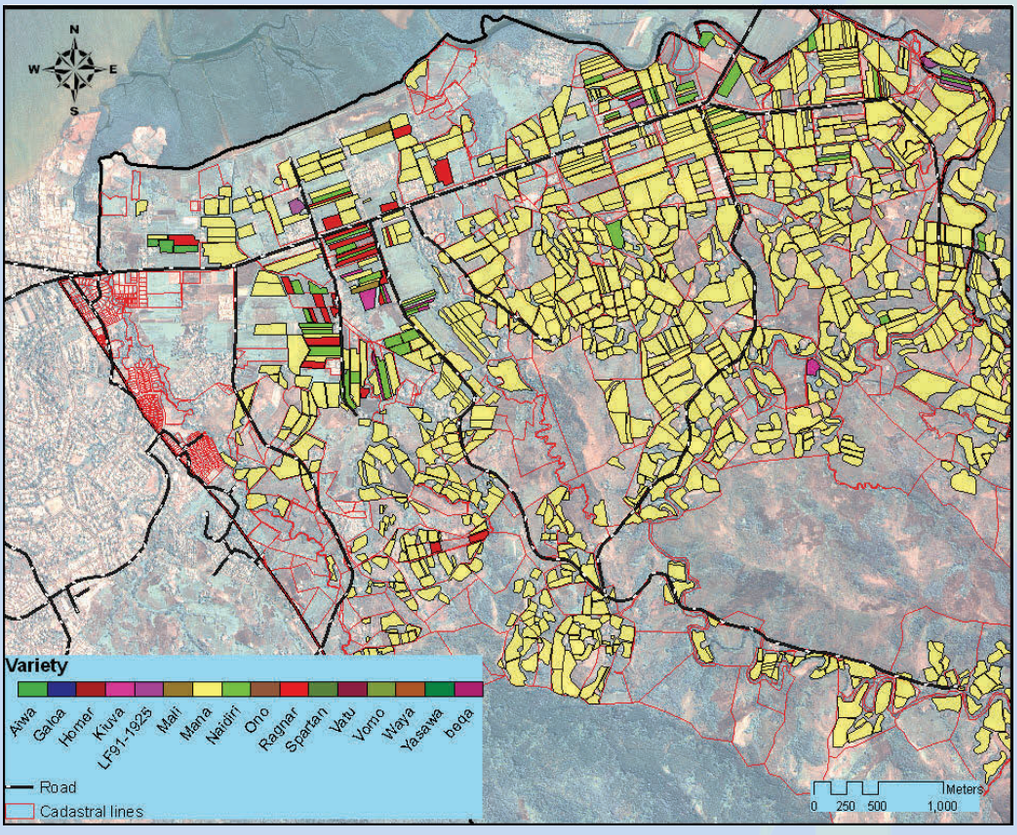


Figure 3: Lovu Sector Cane Variety Distributions

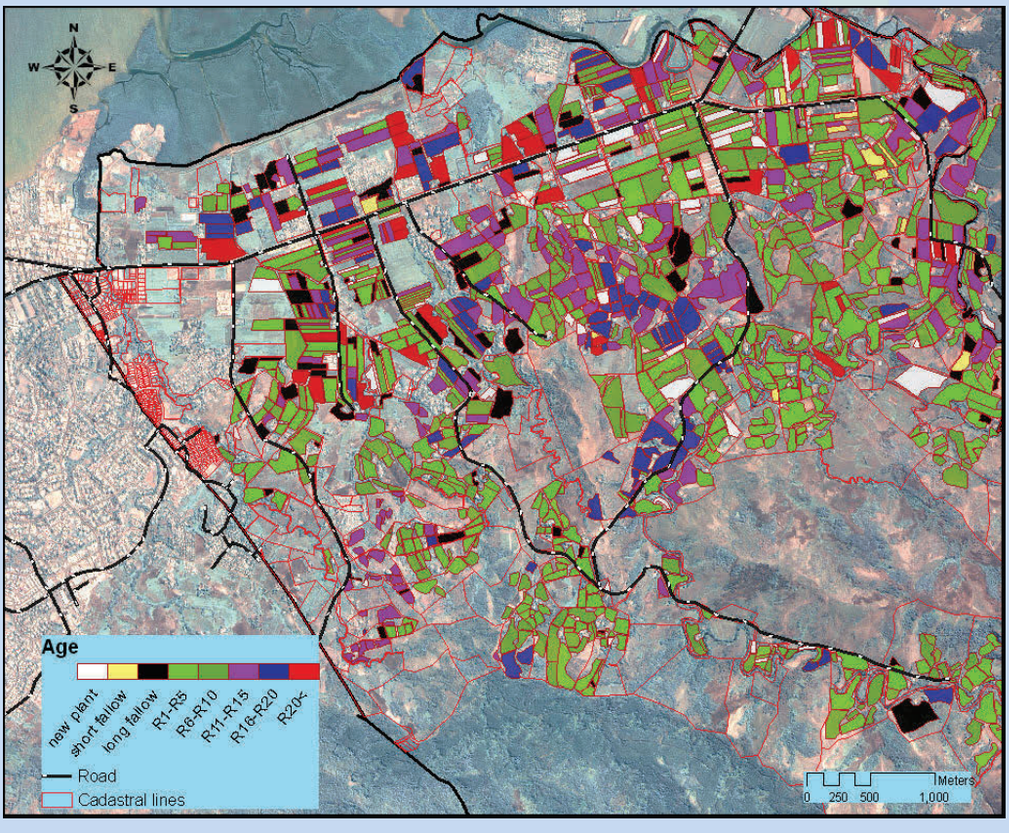


Figure 4: Lovu Sector Ratoon Age Distribution

Drasa Estate

Drasa Estate has a total area of 128.9 hectares available for cane planting. In 2011, 79.5 ha was under commercial cane, 4.6 ha was under research trials, 23.5 ha was under old other variety and 21.3 ha was short fallow. The total cane production at Drasa Estate in 2011 season was 8770 tonnes from an area of 107.6 hectares that gave a yield of 82 tonnes per hectare. There was an increase in cane production from 56tch in 2010 to 82tch in 2011. In addition there was a decrease of 3% in burnt cane (1918 tonnes or 22% of 8770t in 2011) as compared to previous year (1498 tonnes or 25% of 5997t in 2010). The table below summarizes the cane production in 2011.

Table 4: Drasa Estate Cane Production 2011

	Commercial			Research		
Crop	**ha**	**tonnes**	**tch**	**ha**	**tonnes**	**tch**
Plant	6.0	712	119	3.6	480	133
1R	26.7	2534	95	0.6	48	80
2R	4.4	451	103	-	-	-
OR	42.4	2400	57	0.4	30	75
Total	**79.5**	**6097**	**77**	**4.6**	**558**	**121**
	Old Other Variety					**Total**
Crop	**ha**	**tonnes**	**tch**	**ha**	**tonnes**	**tch**
Plant	5.1	705	138	14.7	1897	129
1R	5.9	576	98	33.2	3158	95
2R	1.6	157	98	6.0	608	101
OR	10.9	677	62	53.7	3107	58
Total	**23.5**	**2115**	**90**	**107.6**	**8770**	**82**

The 2011 season was an exceptional one because all months received above average rainfall. The normal yearly rainfall is between 1800-2500mm. During the year a total of 3176mm of rainfall was received and this was 1448mm more compared to 2010 season (1727mm) and a lot of difficulties were encountered during the planting and harvesting time. The cane production per hectare increased by 26 tonnes compared to 2011 season. All fertilization was done mechanically except the trials. A total of 1814 bags of fertilizer was applied that included 3 bags blend A, 105 bags blend B and 1706 bags blend C. In nutritional value the 2011 crop received 205kgN/ha, 55kgP/ha and 133kgK/ha. The 2011 harvesting season commenced on 07/06/11 and ceased on 22/12/11 whereas estate harvesting commenced on 28/06/11 and ceased on 17/12/11. Apart from research cane (257t) and some commercial cane (246t) which was harvested manually the remaining cane (8267t) was harvested mechanically. All cultivation, fertilization and harvesting was given out on contract. Total cane planted in 2011 was 10.9 hectares out of this 4.0ha was Naidiri, 1.5ha Kiuva, 0.3 ha Ragnar-HWT, 0.2 ha Aiwa-HWT, 0.1ha Beqa-HWT, 0.9ha near commercial LF04-448, 1.4ha research trials and 2.5ha Other Variety. Approximately 300 tonnes of cane was used as seed material, out of this 73 tonnes was used for estate planting, 192t was sold to FSC for establishment of seed cane nurseries,11t was sold for cash and 24t was sold on FSC order.

Table 5: Drasa Estate production figures for the last five years (2007-2011)

Year	Area	Production					Yield
	(ha)	Burnt	%	Green	%	Total	tch
2007	104.8	2819	38	4523	62	7343	70.1
2008	114.8	2864	40	4254	60	7118	62.0
2009	94.2	3262	46	3082	54	6344	67.0
2010	108.0	1498	25	4499	75	5997	56.0
2011	107.6	1918	22	6782	78	8700	82.0

Waqadra Estate

Nadi Estate has a 64.9 ha for cane production with farm basic allotment of 3856 tonnes.
The total production of cane at the Estate this year was 3320 tonne of cane from 51.9 hectare giving a yield of 63.9 tch. There was an increase in the yield for Commercial crop from 54.3 tch in 2010 to 79.0 tch in 2011.

Table 6: Waqadra Estate production figures for the last five years (2007-2011)

Year	Area	Production					Yield
	(ha)	Burnt	%	Green	%	Total	tch
2007	56.6	2971	71.6	1176	28.4	4147	73.3
2008	59.6	2971	69.8	1176	30.2	4252	69.6
2009	48.6	2190	53.5	1899	46.5	4089	84.1
2010	63.0	1349	39.4	2074	60.6	3423	54.3
2011	51.9	1270	40.0	2050	60.0	3320	63.9

Rarawai Estate

A total of 3094 mm rainfall was received during 2011 season compared to 1655 mm in 2010. The sugarcane growth was greatly affected by water logging due to excessive rainfall.
The total cane harvested from Rarawai Estate in 2011 season was 3906 tonnes of which 3689 was sent to the mill and approximately 217 t was used for seed cane at Estate and sold to growers at mill sectors. The production of cane per hectare (tch) for commercial and Research was 69 and 50t respectively. The yield for commercial cane for 2011 compared to 2010 had increased by 9 tch. The actual area measured for under cane showed less as compared to previous record.

Total of 3689 t harvested and sent to mill of which 2770t was green and 919 t burnt cane. The cultivation in the estate was done by tractor. Scarifier cultivator (Tiller) was mostly used to control weeds and at the same time cover fertilizer that was applied mechanically. In addition to this two other methods i.e. chemical and manual weed control was carried out in all fields. Manual weeding was also carried to control weeds namely Rottoboellia, Pennywort and Balsam Pear since the herbicides were to a large extent ineffective on these weeds.

Table 7: Rarawai Estate Cane Production 2011

Crop	Research			Commercial			Total		
	ha	tonnes	tch	ha	tonnes	tch	ha	tonnes	tch
Plant	4.5	272	60.4	10.9	950	87.2	15.4	1222	79.4
1R	0.7	52	74.3	13.4	968	72.2	14.1	1020	72.3
2R				3.8	229	60.3	3.8	229	60.3
OR	5.6	220	39.3	17.8	998	55.5	23.4	1218	52.1
Total	10.8	544	50.4	45.9	3145	68.5	56.7	3689	65.1

Table 8: Rarawai Estate production figures for the last seven years (2005-2011)

Year	Area	Production					Yield
	(ha)	Burnt	%	Green	%	Total	tch
2005	88.8	2160	32.9	4414	67.1	6574	74
2006	83.2	6033	74.7	2041	25.3	8074	97
2007	79.5	2797	55.0	2292	45.0	5089	64
2008	74.6	2206	50.1	2194	49.9	4400	59
2009	76.6	1583	33.3	3167	66.7	4750	62
2010	71.0	1710	40.0	2555	60.0	4265	60
2011	56.7	919	24.9	2770	75.1	3689	65

Labasa Estate

Labasa Estate harvested 1161 tonnes of cane this season with an area of 20.0 ha giving a yield of 58.1 tonnes per hectare. Production dropped drastically due to lease expiry in September this year. Two hundred tonnes of cane was left as stand over in the fields due to continuous mill break down and excessive rain during the end of crush.

Forty tonnes of Kiuva variety and 15 tonnes of LF91-1925 were given free to 40 growers in different sectors for propagation. Fifteen tonnes of LF91-1925 was also sold to growers. In the Batnikama farm 54 tonnes of cane was harvested this season from 0.8 hectares and 2.4 ha were ploughed out in 2010 and left as short fallow.

Korowiri climate station received 2837mm of rainfall this year, 562 mm more than previous year. Majority of rain received was during the first and the last quarter of the year. Labasa had experienced a dry spell during September to October.

Table 9: Labasa Estate Cane Production 2011

Crop	Research			Commercial			Total		
	ha	tonnes	tch	ha	tonnes	tch	ha	tonnes	tch
Plant	nil	nil	nil	1.6	120	75	1.6	120	75
1R	nil	nil	nil	6.0	350	58.3	6.0	350	58.3
2R	nil	nil	nil	2.0	110	55.0	2.0	110	55.0
OR	nil	nil	nil	10.4	581	55.8	10.4	581	55.8
Total	nil	nil	nil	20.0	1161	58.1	20.0	1161	58.1

Table 10: Labasa Estate production figures for the last five years (2007-2011)

Year	Area	Production					Yield
	(ha)	Burnt	%	Green	%	Total	tch
2007	28.4	318	16.9	1567	83.1	1885	66.4
2008	27.6	778	63.0	454	37.0	1232	44.6
2009	28.0	nil	nil	1623	10.0	1623	58.0
2010	30.0	127	6.1	1936	93.9	2063	68.8
2011	20.0	331	28.5	830	71.5	1161	58.1

Penang Estate

Penang estate has an area of 4.01hectares that is divided into four blocks that are planted with commercial varieties. In 2011, 308 tonnes of cane was harvested and sent to the mill and 5 tonnes was given as seedcane. The decline in production was due to the heavy rain and flooding that brought a lot of debris that damaged the cane. Weeding, trashing, spraying and fertilization was done on time.

Table 11: Penang Estate production figures for the last five years (2007-2011)

Year	Area	Burnt		Green		Total	Yield
	ha	Tonnes	%	Tonnes	%	Tonnes	tch
2007	4.01	20	8.0	237	92.0	257	67
2008	4.01			337	100.0	337	84
2009	3.69			309	100.0	309	84
2010	3.78	62	18.0	276	82.0	338	89
2011	4.01	205	67.0	103	33.0	308	77

Field Activities Crop Production (FACP) Appendices for all mills

Appendix 1: Main features of 2011 season compared with 2010

	Lautoka		Rarawai		Labasa		Penang		All mills	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Total registrations	5612	5379	5233	5154	4047	3969	1876	1876	16768	16378
Total farm basic allotments (tonnes)	930419	915058	907150	889784	863638	873953	301174	301174	3002381	2979969
Total registered area (hectares)	25155	22816	22139	21825	18979	17931	8897	8897	75170	71469
Total area cultivated (hectares)	15229	14149	15040	18860	15922	16893	5709	5709	51900	55610
Total area harvested (hectares)	13780	11954	13519	12661	13974	14454	3654	3787	44927	42856
Total farm harvest quotas (tonnes)				889784				141855		
Sugar make actual(tonnes)	44647	47287	30710	59022	39782	44015	17995	16345	133134	166669
Tonnes 94 N.T sugar	43384	50306	31580	61028	40943	45146	18530	16838	134436	173318
Yield tonnes 94 N.T.sugar per hectare	3.15	4.21	2.34	4.82	2.93	3.05	5.07	4.45	2.99	4.04
Tonnes cane per tonnes sugar 94 N.T.	12.57	12.97	15.18	11.03	13.55	13.00	10.8	12.37	13.24	12.14
%pocs	10.1	9.57	9.60	9.84	10	10.0	10.6	9.63	10.88	9.77
Cane purity average for season	81	80.9	76.2	80.1	80	79.9	80.5	79.2	81.0	80.0
Tonnes cane harvested	527663	652333	522114	663774	554575	570468	175701	208860	1780053	2104555
Tonnes cane crushed	545431	644408	479294	673442	554575	570471	200747	208307	1780047	2104555

Appendix 2: Monthly rainfall(mm) for 2011 compared with long term average

Mills	No. of years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Lautoka	2011 actual	566	427	407	264	227	127	108	131	92	104	178	162	2791
	103 yrs LTM	306	319	316	183	98	65	51	69	72	91	127	190	1827
Rarawai	2011 actual	694	362	253	238	164	119	108	130	70	188	227	227	2779
	126 yrs LTM	355	357	363	291	79	37	29	97	104	146	224	239	2320
Labasa	2011 actual	674	476	362	84	198	89	100	54	60	161	314	244	2814
	123 yrs LTM	365	359	378	236	111	65	47	50	103	100	206	254	2273
Penang	2011 actual	659	592	322	278	385	75	39	99	44	185	389	181	3246
	114 yrs LTM	436	352	407	381	124	69	52	91	86	145	156	241	2541

LTM – Long Term Mean up to 2011

Appendix 3: Crop production details

	Lautoka		Rarawai		Labasa		Penang		All mills	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Areas harvested (hectares)										
Plant	684	1344	1078	1370	1086	2065	220	521	3068	5300
First ratoon	822	607	1014	1000	1070	1133	232	235	3138	2977
2nd ratoon	594	708	826	913	1236	1040	243	225	2899	2886
Other ratoons	11681	9295	10600	9378	10583	10215	2959	2805	35823	31693
Total	13780	11954	13519	12661	13974	14453	3654	3786	44927	42854
Tonnes Cane Harvested										
Plant	39601	91463	52547	85721	54930	96417	12076	27772	159154	301373
First ratoon	41874	39719	45267	57951	51716	53792	11859	11935	150716	163397
2nd ratoon	25863	40249	33556	50370	52277	43281	11008	11220	122704	145120
Other ratoons	420129	480902	390646	469732	395604	376978	140758	157933	1347137	1485545
Total	527467	652333	522016	663774	554527	570468	175701	208860	1779711	2095435
Yield tonnes per hectare harvested										
Plant	57.9	68.1	48.7	62.6	50.6	46.7	55.0	53.3	52.0	56.9
First ratoon	51.0	65.4	44.6	57.9	48.3	47.5	51.1	50.8	48.0	54.9
2nd ratoon	43.6	56.9	40.6	55.2	42.3	41.6	45.3	49.9	42.3	50.3
Other ratoons	36.0	51.7	36.9	50.1	37.4	36.9	47.6	56.3	37.6	46.9
Avg. yield/ha	38.3	54.6	38.6	52.4	39.7	39.5	48.1	55.2	39.6	48.9
Main varieties crushed according to tonnes (%)										
Ragnar	0.5	0.4	0.3	0.2	19.6	16.2	0.2	0.2	6.4	4.6
Aiwa	0.4	0.4	0.1	0.2	0.3	0.4	nil	nil	0.3	0.3
Beqa	0.1	nil	nil	nil	0.2	0.1	nil	nil	0.1	nil
Galoa	0.1	0.1	0.0	nil	6.2	9.2	nil	nil	1.9	2.5
Kaba	2.6	2.8	4.9	4.0	0.2	0.3	0.6	0.2	2.4	2.2
Mali	nil	nil	nil	nil	13.1	13.7	0.4	0.2	4.1	3.8
Mana	93.8	93.9	91.8	93.9	nil	nil	94.5	98.7	64.1	68.8
Naidiri	1.5	1.0	1.7	1.2	31.3	35.5	4.0	0.6	11.1	10.4
Vatu	nil	nil	nil	nil	19.4	16.2	nil	nil	6.0	4.4
Waya	nil	nil	0.7	0.1	7.7	7.4	nil	nil	2.6	2.1
LF91-1925	0.4	0.5	nil	0.1	1.4	0.3	nil	nil	0.6	0.3
Kiuva	nil	0.4	nil	0.1	nil	nil	nil	nil	nil	0.1
Expt./Others	0.6	0.5	0.5	0.2	0.6	0.9	0.3	0.1	0.4	0.5
Total	100	100	100	100	100	100	100	100	100	100

Appendix 4: Rainfall (mm) at mill centres

Mill	For 12 months ended 31st December					For 12 months ended 30th September				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Lautoka	2363	2502	2875	1299	3115	2054	2714	2983	899	2422
Rarawai	2805	3020	2591	1655	3032	2663	3115	2932	1101	2779
Labasa	2786	2448	2479	2275	3087	2208	2815	2709	1568	2814
Penang	2618	3384	3064	1643	3335	1991	3673	3165	1342	3246

Appendix 5: Rainfall distribution affecting 2011 crop(mm)

Month	Period	Lautoka	Rarawai	Labasa	Penang
Jul 10	Early	52.2	26.3	53.0	8.0
	Mid	2.4	26.7	Nil	80.1
	Late	nil	nil	Nil	nil
Aug 10	Early	1.6	8.9	8.9	1.6
	Mid	nil	nil	nil	2.2
	Late	5.2	14.6	14.6	38.1
Sep 10	Early	3.6	26.2	26.2	nil
	Mid	0.9	1.2	1.2	2.3
	Late	5.9	4.2	4.2	14.5
Oct 10	Early	3.0	8.9	8.9	19.4
	Mid	107.2	63.1	63.1	90.4
	Late	96.0	69.4	69.4	64.4
Nov 10	Early	16.0	30.1	30.1	76.5
	Mid	126.4	178.5	227.0	121.8
	Late	156.9	276.1	227.6	226.8
Dec 10	Early	60.8	12.7	12.7	86.5
	Mid	120.4	136.4	136.4	170.9
	Late	44.4	117.5	117.5	143.1
Jan 11	Early	246.9	265.2	232.2	272.1
	Mid	192.8	275.4	221.5	185.8
	Late	120.1	197.1	219.9	201.5
Feb 11	Early		7.2	62.5	154.4
	Mid		29.4	348.0	415.5
	Late		2.4	65.3	21.9
Mar 11	Early	26.9	25.6	105.8	217.9
	Mid	8.6	7.0	16.8	48.3
	Late	5.1	9.7	239.0	55.4
Apr 11	Early	12.2		49.8	167.8
	Mid	27.2		10.4	28.1
	Late	2.9		23.4	81.8
May 11	Early	188.4	111.2	153.5	242.0
	Mid	38.2	45.6	22.5	68.4
	Late	nil	170.6	21.8	74.2
Jun 11	Early			56.9	33.6
	Mid			2.0	16.2
	Late			29.6	24.9

Early - 1st to 10th of the month Mid - 11th to 20th of the month Late - 21st to end of the month

Appendix 6: Hectares harvested

Mills		Average for period of five seasons				Last six seasons individually					
		1986/1990	1991/1995	1996/2000	2001/2005	2006	2007	2008	2009	2010	2011
Lautoka	Plt	4007	3634	2944	1042	850	507	1009	888	684	1344
	Rtn	19743	20580	19701	19730	16275	15869	14258	13573	13096	10610
	Total	23750	24214	22645	20772	17125	16376	15267	14461	13780	11954
Rarawai	Plt	3574	2899	3164	1055	1651	975	894	1038	1078	1370
	Rtn	14805	17360	14613	17585	15476	15916	14828	14102	12441	11291
	Total	18379	20259	17777	18640	17127	16891	15722	15140	13519	12661
Labasa	Plt	2512	3120	2597	1269	1341	797	1366	990	1086	2065
	Rtn	17181	19604	18348	15911	15169	13839	14149	14150	12888	12389
	Total	19693	22724	20945	17180	16510	14636	15515	15140	13974	14454
Penang	Plt	1396	1386	1120	542	457	411	334	272	220	522
	Rtn	5029	4958	4674	4568	4218	4244	4069	3990	3434	3265
	Total	6425	6344	5794	5110	4675	4655	4403	4262	3654	3787
All Mills	Plt	11489	11039	9825	3908	4298	2690	3603	3188	3067	5300
	Rtn	56758	62502	57336	57794	51140	49868	47304	45815	41860	37556
	Total	68247	73541	67161	61702	55438	52558	50907	49003	44927	42856

Appendix 7: Tonnes of cane harvested

Mills	Average for period of five seasons				Last six seasons individually					
	1986/1990	1991/1995	1996/2000	2001/2005	2006	2007	2008	2009	2010	2011
Lautoka	1048942	1283569	1216597	971454	1051097	741231	770569	726046	527663	652333
Rarawai	1006366	1017374	957507	878509	1039474	738478	732165	659351	522114	663774
Labasa	1015166	1166055	1017061	840388	871031	769138	604314	679584	554575	570468
Penang	332592	291206	309205	239044	264498	229844	214572	181650	175701	208860
All Mills	3403066	3758204	3500370	2929395	3226100	2478691	2321620	2246631	1780053	2095435

Appendix 8: Tonnes of cane per hectare harvested

Mills		Average for period of five seasons				Last six seasons individually					
		1986/1990	1991/1995	1996/2000	2001/2005	2006	2007	2008	2009	2010	2011
Lautoka	Plt	65.4	64.7	64.2	63.9	81.9	65.6	65.7	64.9	57.9	68.1
	Rtn	54.2	51.2	51.4	45.9	59.1	43.5	49.1	49.2	37.3	52.9
	Total	55.5	52.4	53.7	46.8	61.4	45.3	50.5	50.2	38.3	54.6
Rarawai	Plt	64.3	61.2	62.1	59.6	72.7	55.4	57.9	59.4	48.7	62.6
	Rtn	52.0	48.1	52.9	46.4	57.7	41.6	44.6	42.4	37.7	51.2
	Total	54.2	50.1	53.9	47.1	60.2	43.7	46.6	43.6	38.6	52.4
Labasa	Plt	58.9	59.3	56.5	59.7	64.1	65.5	47.2	56.1	50.6	46.7
	Rtn	51.5	50.4	47.4	47.6	49.2	49.2	36.4	44.1	38.8	38.3
	Total	51.5	51.3	48.6	48.9	52.7	52.6	38.9	44.9	39.7	39.5
Penang	Plt	63.1	57.2	62.6	54.2	63.8	60.2	53.9	48.6	54.9	53.3
	Rtn	48.6	43.1	51.2	46.4	56.4	47.1	48.0	42.2	47.6	55.5
	Total	51.1	46.0	53.3	46.8	56.6	49.4	48.7	42.6	48.1	55.2
All Mills	Plt	62.6	61.2	61.8	58.3	71.1	61.1	54.6	59.0	51.9	56.9
	Rtn	55.8	48.1	50.0	46.0	55.9	44.7	45.0	44.9	38.7	47.8
	Total	53.3	50.2	52.1	47.5	58.2	47.2	45.6	45.8	39.6	48.9

Appendix 9: Hectares harvested in relation to registered area and cultivated area (ha)

Mills	2011 hectares (A)			Hectares harvested as % of various categories "A"	
	Registered (1)	Cultivated (2)	Harvested	(1)	(2)
Lautoka	22816	14148	11954	52.4	84.5
Rarawai	21825	18860	12661	58.0	67.1
Labasa	17931	16893	14454	80.6	85.6
Penang	8897	5709	3787	42.6	66.3
Total	71469	55610	42856	60.0	77.1

Appendix 10: Plant cane harvested as percentage of total cane harvested

Mills	Average for period of five seasons				Last six seasons individually					
	1986/ 1990	1991/ 1995	1996/ 2000	2001/ 2005	2006	2007	2008	2009	2010	2011
Lautoka	17	15	13	5	7	3	4	6	7.5	14.0
Rarawai	19	14	18	6	12	6	6	7	10.1	12.9
Labasa	13	14	12	7	10	5	9	7	9.9	16.9
Penang	22	23	19	11	11	9	8	6	6.9	13.3
All Mills	17	16	15	7	10	5	6	7	8.9	14.4

Appendix 11: Plant and ratoon yields and percentage of total area harvested - 2011 Crop

Mills	Plant		First ratoon		Other ratoons		All cane	
	tch	% Area	tch	% Area	tch	% Area	tch	% Area
Lautoka	68.1	11.2	65.4	5.1	52.1	83.7	54.6	100
Rarawai	62.6	10.8	58.0	7.9	50.5	81.3	52.4	100
Labasa	46.7	14.3	47.5	7.8	37.3	77.9	39.5	100
Penang	53.3	13.8	50.8	6.2	55.8	80.0	55.2	100
All Mills	56.9	12.4	54.9	6.9	47.2	80.7	48.9	100

Appendix 12: Seasonal %pocs in cane

Mills	Rough average for period of five seasons				Last six seasons individually					
	1986/90	1991/95	1996/00	2001/05	2006	2007	2008	2009	2010	2011
Lautoka	12.0	12.5	11.4	11.5	10.7	11.3	10.7	10.2	10.9	9.6
Rarawai	12.1	12.9	11.4	11.9	11.5	11.6	10.7	NA	9.6	9.8
Labasa	12.4	12.1	11.1	11.5	11.4	10.4	11.0	10.8	10.0	10.0
Penang	12.2	12.6	11.1	11.9	11.9	11.5	10.5	NA	10.6	9.6
All Mills Avg.	12.3	12.5	11.2	11.7	11.3	11.2	10.7	NA	10.9	9.8

Appendix 13: Weekly %pocs in cane 2011 season

Week no.	Week ending	Lautoka	Rarawai	Labasa	Penang
1	13/06/11	8.28			
2	20/06/11	8.35			
3	27/06/11	8.56	9.01		
4	4/07/11	9.02	9.22		8.74
5	11/07/11	9.44	9.25		9.51
6	18/07/11	9.51	8.98	10.55	9.13
7	25/07/11	9.84	8.73	10.89	9.27
8	01/08/11	9.98	9.32	10.56	9.20
9	08/08/11	9.61	9.10	10.47	9.45
10	15/08/11	9.27	9.82	10.16	8.71
11	22/08/11	9.39	9.79	10.23	9.51
12	29/08/11	9.66	10.11	10.67	8.87
13	05/09/11	9.34	9.86	10.57	9.20
14	12/09/11	9.61	10.09	10.62	9.57
15	19/09/11	9.90	10.57	10.12	9.77
16	26/09/11	9.71	10.91	10.38	10.20
17	03/10/11	10.11	10.82	9.67	10.50
18	10/10/11	9.98	10.75	9.57	10.27
19	17/10/11	9.97	10.70	9.98	9.65
20	24/10/11	9.95	10.60	10.25	10.05
21	31/10/11	9.89	10.69	9.86	10.19
22	07/11/11	9.88	10.63	9.91	10.18
23	14/11/11	9.85	10.49	9.59	10.02
24	21/11/11	9.71	10.00	8.05	9.67
25	28/11/11	9.61	9.46	8.54	9.06
26	05/12/11	9.66	9.29	8.94	
27	12/12/11	9.45	9.60	8.96	
28	19/12/11	9.70	9.23	8.97	
29	26/12/11	9.56	8.20	8.77	
Season Average		**9.54**	**9.82**	**9.85**	**9.58**

Appendix 14: Sugar produced (tonnes 94 N.T. equivalent)

Mills	Tonnes sugar 94 N.T equivalent							
	2004	2005	2006	2007	2008	2009	2010	2011
Lautoka	110684	97315	96875	75656	77311	53313	43384	50306
Rarawai	100664	84258	106781	78786	63954	42222	31580	61028
Labasa	87802	90347	83970	68255	53160	57548	40943	45146
Penang	24716	24733	30937	21858	23231	22818	18530	16838
All mills	323866	296653	318563	244555	217656	175901	134436	173318

Appendix 15: Sugar per hectare harvested (tonnes 94 N.T equivalent)

Mills	Average for period of five seasons				Last six seasons individually					
	1986/ 1990	1991/ 1995	1996/ 2000	2001/ 2005	2006	2007	2008	2009	2010	2011
Lautoka	6.55	6.15	5.61	4.92	5.60	4.62	5.06	3.69	3.15	4.21
Rarawai	6.36	6.29	5.61	5.38	6.23	4.66	4.06	2.79	2.34	4.82
Labasa	6.20	6.00	4.95	4.97	5.09	4.66	3.43	3.80	2.93	3.05
Penang	5.70	5.47	5.42	4.65	6.63	4.70	5.28	5.35	5.07	4.45
Average	6.28	6.05	5.39	5.06	5.75	4.65	4.28	3.59	2.99	4.04

Appendix 16: Length of season (weeks) - Start and finish of crushing (date)

Mills	Average for five seasons				Last five seasons individually					
	1986/ 1990	1991/ 1995	1996/ 2000	2001/ 2005	2006	2007	2008	2009	2010	2011
Lautoka	28.8	28.0	29.7	27.6	32.4	24.0	23.9	31.4	23.3	28.3
					05 Jun	07 Jun	10 Jun	22 Jun	24 Jun	08 Jun
					11 Jan	18 Nov	21 Nov	25 Jan	4 Dec	24 Dec
Rarawai	26.2	25.3	26.5	24.2	30.8	23.8	25.7	31.5	28.0	26.6
					31 May	18 Jun	23 Jun	03 Jul	28 Jun	21 Jun
					01 Jan	18 Nov	15 Dec	03 Feb	11 Jan	24 Dec
Labasa	26.6	29.4	30.7	24.1	29.0	29.1	26.0	25.6	28.1	22.7
					06 Jun	06 Jun	30 Jun	09 Jun	22 Jun	14 Jul
					25 Dec	25 Dec	22 Dec	18 Dec	29 Dec	20 Dec
Penang	25.5	21.5	26.2	20.4	21.4	22.1	22.2	22.4	24.6	24.6
					20 Jun	06 Jun	11 Jun	19 May	6 Jun	28 Jun
					16 Nov	06 Nov	13 Nov	22 Oct	20 Nov	28 Nov
All mills	26.8	26.1	28.2	24.1	28.4	24.8	24.5	28.3	23.3	25.6

Appendix 17: Varieties Percent of hectares harvested

	Lautoka		Rarawai		Labasa		Penang		All Mills	
Varieties	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Ragnar	0.5	0.4	0.3	0.2	19.6	16.2	0.2	0.2	6.4	4.6
Waya	nil	nil	0.7	0.1	7.7	7.4	nil	0.2	2.6	2.1
Mali	nil	nil	nil	nil	13.1	13.7	0.4	nil	4.1	3.7
Galoa	0.1	0.1	nil	nil	6.2	9.2	nil	nil	1.9	2.5
Aiwa	0.4	0.4	0.1	0.2	0.3	0.4	nil	nil	0.3	0.3
Kiuva	0.1	0.4	nil	0.1	nil	nil	nil	nil	nil	0.2
Mana	94	93.9	91.8	93.9	nil	nil	94.5	98.8	64.1	68.8
LF91-1925	0.4	0.5	nil	0.1	1.4	0.3	nil	nil	0.6	0.3
Kaba	2.6	2.8	4.9	4.0	0.2	0.3	0.6	0.2	2.4	2.2
Vatu	nil	nil	nil	nil	19.4	16.2	nil	nil	6.0	4.4
Beqa	0.1	nil	nil	nil	0.2	0.1	nil	nil	0.1	0.1
Naidiri	1.5	1.0	1.7	1.2	31.3	35.5	4	0.6	11.1	10.4
Exp.	nil	nil	nil	nil	nil	nil	nil	0.1	nil	nil
Other var.	0.4	0.5	0.3	0.2	0.6	0.9	0.3	nil	0.4	0.5

Appendix 18: Area planted in hectares as % of registered and cultivated areas

	Hectares planted		Hectares planted as % of registered area		Hectares planted as % of cultivated area	
	2010	2011	2010	2011	2010	2011
Lautoka	1698	297	6.6	1.3	11.5	2.1
Rarawai	1623	746	7.3	3.2	10.8	3.7
Labasa	2357	772	12.4	4.3	14.8	4.6
Penang	792	208	8.9	2.3	13.8	3.6
Total	6470	2023	8.6	2.8	12.5	6.3

Appendix 19: Planting of varieties as percentage of total area planted over three years

Year	Varieties	Lautoka	Rarawai	Labasa	Penang	All mills
2009	Ragnar	6.30	Nil	10.40	-	
2010		0.40	0.30	16.60	0.10	
2011						5.00
2009	Waya	-	0.40	9.30	-	
2010		-	0.60	7.00	-	
2011						4.80
2009	Mana	80.20	91.40	-	98.70	
2010		85.30	83.20	-	61.80	
2011						54.20
2009	Galoa	-	-	5.10	-	
2010		0.06	-	5.40	-	
2011						2.90
2009	Vatu	0.20	-	7.70	-	
2010		-	-	17.60	-	
2011						3.40
2009	Mali	-	-	13.80	0.30	
2010		-	0.05	11.80	0.30	
2011						5.10
2009	Aiwa	0.40	-	2.00	-	
2010		0.34	0.10	0.30	-	
2011						0.10
2009	Beqa	0.30	-	-	-	
2010		0.02	-	0.20	-	
2011						
2009	Kaba	0.10	5.70	-	-	
2010		2.50	4.10	0.20	0.50	
2011						3.30
2009	Naidiri	1.90	1.30	50.10	-	
2010		1.36	1.20	27.00	3.40	
2011						17.20
2009	Kiuva	1.30	-	-	-	
2010		0.03	-	-	-	
2011						0.70
2009	LF91-1925	1.70	-	1.00	-	
2010		0.27	0.02	1.30	-	
2011						1.50
2009	Other Varieties	1.00	1.20	0.60	1.00	
2010		0.23	0.20	0.50	0.10	
2011		3.70	1.00	1.80	1.00	1.70

Appendix 20: Cane transport in Fiji (tonnes of cane harvested and actual method of delivery)

Mills	Year	Delivered portable line		Winch trailer or lorry to mainline		Lorry direct to mill carrier		Total	
		Tonnes	% of Total	Tonnes	% of Total	Tonnes	% of Total	Tonnes	% of Total
Lautoka	2005	16695	2	202130	23	671954	75	890779	100
	2006	11854	1	174057	17	865186	82	1051097	100
	2007	13652	2	158002	21	569577	77	741231	100
	2008	15915	2	179905	24	574754	74	770567	100
	2009	12464	2	168852	23	544730	75	726046	100
	2010	3964	1	129410	25	394094	75	527468	100
	2011	9491	1.5	144569	22.2	498273	76.4	652333	100
Rarawai	2005	40601	5	223857	29	497246	66	761704	100
	2006	44731	4	239872	23	754871	73	1039474	100
	2007	32927	5	184605	25	520946	70	738478	100
	2008	38797	5	184094	25	509470	70	732165	100
	2009	23827	4	164490	25	471034	71	659351	100
	2010	25106	5	126450	24	370460	71	522016	100
	2011	23586	3.6	332792	50.1	307396	46.3	663774	100
Labasa	2005	18563	2	249669	27	642431	71	910663	100
	2006	3391	1	238591	27	629049	72	871031	100
	2007	2910		233371	31	532847	69	769138	100
	2008	1275		179815	30	423224	70	604314	100
	2009			230735	34	448849	66	679584	100
	2010			171042	34	383485	66	554527	100
	2011	nil	nil	162856	29	407610	71	570466	100
Penang	2005	1191	5	38421	17	175260	78	225594	100
	2006	3681	1	63499	24	197318	75	264498	100
	2007	3010	1	55450	24	171378	75	229838	100
	2008	3026	1	48285	23	163261	76	214572	100
	2009	11145	6	30977	17	139528	77	181650	100
	2010			44447	25	131254	75	175701	100
	2011	nil	nil	55422	26.5	153438	73.5	208860	100
All mills	2005	87772	3	714077	26	1986891	71	2788740	100
	2006	63657	2	716019	22	2446424	76	3226100	100
	2007	52509	2	128061	16	2298115	82	2478685	100
	2008	59013	3	592099	26	1670704	72	2321620	100
	2009	47436	2	595054	26	1604141	71	2246631	100
	2010	29070	1.6	471349	26.5	1279293	72	1779712	100
	2011	33077	1.6	695639	33.2	1366717	65.2	2095433	100

Appendix 21: Percentage burnt cane of total tonnes crushed

Year	Lautoka	Rarawai	Labasa	Penang	Average
1970	8.7	8.9	0.6	4.7	5.7
1971	18.7	26.1	6.4	12.9	16.0
1972	10.7	13.4	0.9	8.9	8.5
1973	17.0	22.4	2.7	4.6	11.7
1974	24.9	36.5	5.1	20.7	21.8
1975	18.2	29.1	3.6	14.1	16.3
1976	12.9	28.0	4.9	15.1	15.2
1977	17.7	28.9	6.9	11.8	16.3
1978	19.1	25.3	9.6	8.2	15.6
1979	14.9	25.9	9.6	15.0	16.4
1980	21.5	27.4	16.0	18.0	20.7
1981	17.6	21.2	19.4	17.0	18.8
1982	23.2	24.8	13.6	13.2	18.7
1983	18.3	18.4	18.0	12.0	16.7
1984	25.1	8.2	12.9	10.0	14.1
1985	28.6	25.2	22.4	16.2	23.1
1986	29.5	15.1	15.1	11.3	17.8
1987	23.8	34.2	20.9	19.0	24.5
1988	37.7	15.2	16.0	19.2	22.0
1989	20.6	13.6	12.7	10.0	14.2
1990	24.3	30.4	13.7	14.6	20.8
1991	42.5	46.4	32.0	27.6	37.1
1992	52.5	52.1	44.4	41.1	47.5
1993	35.6	33.4	29.2	19.4	29.4
1994	39.0	36.0	27.0	19.8	30.5
1995	43.4	42.5	37.6	28.7	38.1
1996	54.8	48.1	39.9	33.2	44.0
1997	50.7	49.1	33.5	34.8	42.0
1998	67.0	67.7	54.5	44.6	58.5
1999	41.6	39.8	17.0	26.3	32.4
2000	56.1	54.6	37.8	49.0	50.6
2001	56.7	50.3	18.9	49.5	42.9
2002	46.8	41.8	21.4	33.9	37.1
2003	40.1	32.8	29.3	22.0	33.4
2004	42.7	39.5	18.3	35.5	34.3
2005	44.4	38.4	25.0	34.9	35.7
2006	60.5	58.5	34.4	46.5	51.7
2007	39.0	40.5	39.1	53.5	40.8
2008	50.9	53.6	49.1	48.5	51.1
2009	43.5	33.3	18.6	28.8	31.8
2010	30.4	33.6	18.6	16.3	25.0
2011	28.5	28.2	17.9	26.6	25.3

Approved Varieties

The list of sugarcane varieties approved for planting during 2011 has been revised to include maturity trend. Varieties that are no longer planted have been removed from the approved varieties list. The varieties are recommended to growers on their soil type. The growers have a choice of at least three varieties to plant on their farms as laid down in the Master Award.

Mill/Sectors	Soil types	Varieties recommended on maturity trends	
		Early – mid maturing	Mid – late maturing
Lautoka/Olosara	Rich alluvial soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Cuvu	Flat Fertile soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana
Lautoka/Lomawai	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Lautoka/Yako	Flat Fertile soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa,Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Lautoka/Nawaicoba	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Lautoka/Malolo	Flat Fertile soil	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Qeleloa	Rich alluvial soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Meigunyah	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Legalega	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Natova	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Lautoka/Lautoka	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana

Mill/Sectors	Soil types	Varieties recommended on maturity trends	
		Early – mid maturing	Mid – late maturing
Lautoka/Saweni	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Lautoka/Lovu	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Lautoka/Drasa	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Sandy soils	LF91-1925	Kaba, Mana, Galoa
Rarawai/Varoko	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Mota	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Naloto	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Koronubu	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Veisaru	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Rarawai	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Varavu	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Tagitagi	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Mana, Kaba, Vatu
	Poor soils	LF91-1925	Kaba, Mana
	Saline areas	Naidiri, LF91-1925	Kaba, Mana, Galoa
Rarawai/Yaladro	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
Rarawai/Drumasi	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Mana, Kaba, Vatu
	Poor soils	LF91-1925	Kaba, Mana
	Saline areas	Naidiri, LF91-1925	Kaba, Mana, Galoa

Mill/Sectors	Soil types	Varieties recommended on maturity trends	
		Early – mid maturing	Mid – late maturing
Labasa/Waiqele	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	Naidiri, LF91-1925	Kaba, Mali
Labasa/Wailevu	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	Naidiri, LF91-1925	Kaba, Mali
	Saline soils	Naidiri, LF91-1925	Galoa, Vatu
Labasa/Vunimoli	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	Naidiri, LF91-1925	Kaba, Mali
Labasa/Labasa	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	Naidiri, LF91-1925	Kaba, Mali
	Saline soils	Naidiri, LF91-1925	Galoa, Vatu, Mali
Labasa/Bucaisau	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva, Waya
	Poor soils	Naidiri, LF91-1925	Kaba, Waya, Mali
	Saline soils	Naidiri, LF91-1925	Galoa, Vatu, Mali
Labasa/Wainikoro	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva, Waya
	Poor soils	Naidiri, LF91-1925	Kaba, Waya, Mali
	Saline soils	Naidiri, LF91-1925	Galoa, Vatu, Mali
Labasa/Daku	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva, Waya
	Poor soils	Naidiri, LF91-1925	Kaba, Waya, Mali
Labasa/Natua	Poor soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Mali
Labasa/Solove	Poor soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Mali
Labasa/Bulivou	Poor soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Mali
Penang/Nanuku	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva
	Poor soils	LF91-1925	Kaba, Mana
	Salt affected areas	Naidiri, LF91-1925	Galoa
	Viti Vanua area	Naidiri, LF91-1925	Mana, Kaba, Kiuva, Mali
Penang/Malau	Rich alluvial soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva, Mali
	Poor soils	LF91-1925	Kaba, Mana
	Salt affected areas	Naidiri, LF91-1925	Galoa
Penang/Ellington	Flat Fertile soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Kiuva
	Medium soils	Aiwa, Beqa, Naidiri, LF91-1925	Ragnar, Kaba, Vatu, Kiuva,Mali
	Poor soils	LF91-1925	Kaba, Mana
	Salt affected areas	Naidiri, LF91-1925	Galoa

Sugar Research Institute of Fiji

Financial statements for the year ended

31 December 2011

Sugar Research Institute of Fiji

Contents

Sugar Research Institute of Fiji

Board report
In accordance with a resolution of the Board of Directors, the directors herewith submit the statement of financial position of Sugar Research Institute of Fiji (the "Institute") as at 31 December 2011 and the related statement of comprehensive income and statement of cash flows for the year ended on that date and report as follows:

Board members
The Board members in office during the year end at the date of this report are:
Dr John Morrison - Chairman
Sundresh Chetty
Viliame Gucake
Dr. Krishnamurthi
Suresh Patel
Mangaiya Reddy
Seru Vularika

State of affairs
In the opinion of the Board the accompanying statement of financial position gives a true and fair view of the state of affairs of the Institute as at 31 December 2011 and the accompanying statement of comprehensive income and statement of cash flows give a true and fair view of the results and cash flows of the Institute for the year then ended.

Results
The surplus for the year was $Nil (2010: $Nil) after accounting for income tax benefit of $49,560 (income tax expense 2010: $49,560).

Principal activity
The functions of the Institute are outlined under the Sugar Research Institute of Fiji Act No 14 of 2005, which includes promoting by means of research and investigation, the technical advancement, efficiency and productivity of the sugar industry, and to provide its functions, powers, administration and finance and for related matters.

Current assets
The directors took reasonable steps before the Institute's financial statements were made out to ascertain that the current assets of the Institute were shown in the accounting records at a value equal to or below the value that would be expected to be realised in the ordinary course of business.

At the date of this report, the directors are not aware of any circumstances which would render the values attributable to the current assets in the financial statements to be misleading.

Sugar Research Institute of Fiji

Board report (continued)

Receivables
The directors took reasonable steps before the Institute's financial statements were made out to ascertain that all known bad debts were written off and adequate allowance was made for impairment losses.

At the date of this report, the directors are not aware of any circumstances which would render the above assessment inadequate to any substantial extent.

Related party transactions
All related party transactions have been adequately recorded in the financial statements.

Other circumstances
At the date of this report, the directors are not aware of any circumstances not otherwise dealt with in this report or financial statements which would render any amounts stated in the accounts to be misleading.

Unusual circumstances
The results of the Institute's operations during the financial year have not in the opinion of the directors been substantially affected by any item, transaction or event of a material and unusual nature other than those disclosed in the financial statements.

Events subsequent to balance date
There has not arisen in the interval between the end of the year and the date of this report any item, transaction or event of a material and unusual nature likely, in the opinion of the Board members, to affect significantly the operations of the Institute, the results of those operations or the state of affairs of the Institute in subsequent financial years.

Dated at Lautoka this 22nd day of September 2012 .

Signed in accordance with a resolution of the Board.

Chairman **Board member**

Honourable Commodore Josaia Voreqe Bainimarama
Minister responsible for the Sugar Industry
PO Box 2212
Government Buildings
Suva

Dear Minister,

INDEPENDENT AUDITOR'S REPORT

TO THE BOARD MEMBERS OF SUGAR RESEARCH INSTITUTE OF FIJI

We have audited the accompanying financial statements of Sugar Research Institute of Fiji ("the Institute"), which comprise the statement of financial position as at 31 December 2011, and the statement of comprehensive income and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory notes as set out on pages 5 to 17.

Directors' and Management's Responsibility for the Financial Statements

Directors and management are responsible for the preparation of financial statements that give a true and fair view in accordance with International Financial Reporting Standards and for such internal control as the directors and management determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation of financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Basis of Qualification

VAT payable

The financial statements currently show an amount of VAT payable to the Fiji Government of $287,899. The VAT status of the Institute is currently being determined with FIRCA and it is not presently known what the outcome of this will be. The impact on the amount recorded in the financial statements is currently incapable of determination, and accordingly, we are not able to determine what adjustments, if any, might be necessary to the amounts recorded in the financial statements.

INDEPENDENT AUDITOR'S REPORT

TO THE BOARD MEMBERS OF SUGAR RESEARCH INSTITUTE OF FIJI (continued)

Qualified Opinion

In our opinion, except for the effect, if any, of the matter referred to in the qualification paragraph above, the financial statements give a true and fair view of the financial position of Sugar Research Institute of Fiji as at 31 December 2011 and of its financial performance, its changes in operations and its cash flows for the year then ended in accordance with International Financial Reporting Standards.

Report on Other Legal and Regulatory Requirements

In our opinion, except for the effect, if any, of the qualifications stated above:

i) proper books of account have been kept by the Institute, so far as it appears from our examination of those books;

ii) the financial statements are in agreement with the books of account; and

iii) to the best of our information and according to the explanations given to us the financial statements give the information required by the Sugar Research Institute of Fiji Act, 2005 in the manner so required.

KPMG.

22 September 2012
Nadi, Fiji Islands

KPMG
Chartered Accountants

Sugar Research Institute of Fiji
Statement of comprehensive income
For the year ended 31 December 2011

	Note	2011 $	2010 $
Contributions and grants	5	899,948	2,831,840
Estate income		825,001	755,201
Other income	6	966,375	27,110
Total income		2,691,324	3,614,151
Cost of operations		(1,474,265)	(1,405,524)
Administrative expenses		(1,261,810)	(2,154,706)
Surplus from operations	7	(44,751)	53,921
Finance expense	8	(4,809)	(4,361)
Surplus before tax		(49,560)	49,560
Income tax benefit/(expense)	9	49,560	(49,560)
Surplus after income tax		-	-
Other comprehensive income net of income tax		-	-
Total comprehensive income for the year		-	-

The notes on pages 8 to 17 are an integral part of these financial statements.

Sugar Research Institute of Fiji
Statement of financial position
As at 31 December 2011

	Note	2011 $	2010 $
Assets			
Non-current assets			
Property, plant and equipment	10	3,270,397	3,003,668
Total non-current assets		3,270,397	3,003,668
Current assets			
Cash and cash equivalents	11	1,691,827	727,629
Inventories		1,311	-
Receivables and prepayments	12	13,292	48,467
Receivable from related parties	16(b)	5,495,366	4,295,366
Total current assets		7,201,796	5,071,462
Total assets		10,472,193	8,075,130
Current liabilities			
Deferred income	13	6,435,861	3,736,273
Payable to related parties	16(c)	3,595,739	4,022,442
Employee benefits	14	36,831	33,060
Trade and other payables	15	403,762	233,795
Provision for income tax	9	-	49,560
Total current liabilities		10,472,193	8,075,130
Total liabilities		10,472,193	8,075,130

Signed on behalf of the board

Chairman **Board Member**

The notes on pages 8 to 17 are an integral part of these financial statements.

Sugar Research Institute of Fiji
Statement of cash flows
For the year ended 31 December 2011

	Note	2011 $	2010 $
Operating activities			
Receipts from stakeholders and donors		2,726,087	2,440,856
Payment to suppliers and employees		(2,707,020)	(1,977,332)
Cash flows (used in)/ from operating activities		19,067	463,524
Investing activities			
Proceeds from sale of property, plant and equipment		-	22,391
Acquisition of property, plant and equipment		(554,869)	(1,539,020)
Cash flows used in investing activities		(554,869)	(1,516,629)
Financing activities			
Grant income from stakeholders		1,500,000	1,006,694
Cash flows used in financing activities		1,500,000	1,006,694
Net decrease in cash and cash equivalents		964,198	(46,411)
Cash and cash equivalents at the beginning of the year		727,629	774,040
Cash and cash equivalents at 31 December	11	1,691,827	727,629

The notes on pages 8 to 17 are an integral part of these financial statements.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

1. Reporting entity

Sugar Research Institute of Fiji (the "Institute") is a body corporate domiciled in Fiji, established under the Sugar Research Institute of Fiji Act 2005. The address of the Institute's registered office is Drasa, Lautoka, Fiji.

The functions of the Institute are outlined under Sugar Research Institute of Fiji Act No 14 of 2005, which includes promoting by means of research and investigation, the technical advancement, efficiency and productivity of the sugar industry, and to provide its functions, powers, administration and finance and for related matters.

2. Basis of preparation

(a) Statement of compliance

The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS).

The financial statements were authorised for issue by the Board on 22nd September 2012

(b) Basis of measurement

The financial statements have been prepared on the historical cost basis except where stated.

(c) Functional and presentation currency

The financial statements are presented in Fiji dollars which is the Institute's functional currency.

(d) Use of estimates and judgments

The preparation of financial statements in conformity with IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amount of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised and in any future period affected.

3. Significant accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these financial statement.

(a) Foreign currency transactions

Transactions in foreign currencies are translated to Fiji dollars at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies at the reporting date are retranslated to Fiji dollars at the exchange rate at that date. The foreign currency gains or losses on translation are recognised in profit or loss.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

3. Significant accounting policies (continued)

(a) Foreign currency transactions (continued)

Non-monetary items in a foreign currency that are measured in terms of historical cost are translated using the exchange rate at the date of the transaction.

(b) Property, plant and equipment

Recognition and measurement

Items of property, plant and equipment are measured at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the assets to a working condition for their intended use, the costs of dismantling and removing the items and restoring the site on which they are located, and capitalised borrowing costs. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Any gain and loss on disposal of an item of plant and equipment (calculated as a difference between net proceeds from disposal and carrying amount of the item) is recognised in profit or loss.

Subsequent costs

Subsequent expenditure is capitalised only when it is probable that the future economic benefits associated with the expenditure will flow to the Institute. Ongoing repairs and maintenance is expensed as incurred.

Depreciation

Items of property, plant and equipment are depreciated in profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment. Leased assets are depreciated over the shorter of the lease term and their useful lives unless it is reasonably certain that the Institute will obtain ownership by the end of the lease term. Freehold land is not depreciated.

The estimated useful lives for the current and comparative years are as follows:

Computers	5 years
Fixtures and fittings	10 years
Motor vehicles	6.67 years
Plant and Equipment	6.67 - 10 years

Depreciation methods, useful lives and residual values are reassessed at reporting date and adjusted if appropriate.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

3. Significant accounting policies (continued)

(c) Financial instruments

(i) Non-derivative financial assets

The Institute initially recognises loans and receivables on the date that they are originated. All other financial assets are recognised initially on the trade date at which the Institute becomes a party to the contractual provisions of the instrument.

The Institute derecognises a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows on the financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. Any interest in transferred financial assets that is created or retained by the Institute is recognised as a separate asset or liability.

Financial assets and liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Institute has a legal right to offset the amounts and intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

The Institute classifies non-derivative financial assets into loans and receivables.

Loans and receivables

Receivables are financial assets with fixed or determinable payments that are not quoted in an active market. Such assets are recognised initially at fair value plus any directly attributable transaction costs. Subsequent to initial recognition loans and receivables are measured at amortised cost using the effective interest method, less any impairment losses.

Loans and receivables comprise receivables from related party, other receivables and cash and cash equivalents.

Cash and cash equivalents

Cash and cash equivalents comprises cash at bank and cash on hand.

(ii) Non-derivative financial liabilities

Financial liabilities are recognised initially on the trade date, which is the date the Institute becomes a party to the contractual provisions of the instrument.

The Institute derecognises a financial liability when its contractual obligations are discharged or cancelled or expire.

The Institute classifies non-derivative financial liabilities into the other financial liabilities category. Such financial liabilities are recognised initially at fair value plus any directly attributable transaction costs. Subsequent to initial recognition these financial liabilities are measured at amortised cost using the effective interest method.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

3. Significant accounting policies (continued)

(c) Financial instruments (continued)

(ii) Non-derivative financial liabilities (continued)

The Institute has the following non-derivative financial liabilities: trade and other payables and payable to related party.

(d) Inventories

Inventories are measured at the lower of cost and net realisable value. The cost of inventories is based on the first-in first-out principle, and includes expenditure incurred in acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition.

Net realisable value is the estimated selling price in the ordinary course of business, less the estimated selling expenses.

(e) Impairment

(i) Non-derivative financial assets

A financial asset not carried at fair value through profit or loss is assessed at each reporting date to determine whether there is objective evidence that it is impaired. A financial asset is impaired if objective evidence indicates that a loss event has occurred after the initial recognition of the asset, and that the loss event had a negative effect on the estimated future cash flows of that asset that can be estimated reliably.

Financial assets measured at amortised cost

The Institute considers evidence of impairment for financial assets measured at amortised cost (loans and receivables) at a specific asset level.

An impairment loss in respect of a financial asset measured at amortised cost is calculated as the difference between its carrying amount and the present value of the estimated future cash flows discounted at the asset's original effective interest rate. Losses are recognised in profit or loss and reflected in an allowance account against receivables. When a subsequent event causes the amount of impairment loss to decrease, the decrease in impairment loss is reversed through profit or loss.

(ii) Non-financial assets

At each reporting date non financial assets are reviewed to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. If estimated recoverable amount is lower, the carrying amount is reduced to its estimated recoverable amount, and an impairment loss is recognised immediately in profit or loss.

(f) Trade payables and other payables

Trade and other payables are non-interest-bearing and are stated at cost.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

(g) Revenue

Grant income

An unconditional government grant related to an asset is recognised in profit or loss as other income when the grant becomes receivable.

Grants are recognised in the statement of financial position initially as deferred income when there is reasonable assurance that it will be received and that the Institute will comply with the conditions associated with the grant and are then recognised in profit or loss as other income on a systematic basis over the useful life of the asset. Grants that compensate the Institute for expenses incurred are recognised in profit or loss as other income on a systematic basis in the same periods in which the expenses are recognised.

(h) Employee benefits

Superannuation

Obligations for contributions to the Fiji National Provident Fund (FNPF) are recognised as an expense in the profit or loss when they are incurred.

Short-term benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed in the profit or loss as the related service is provided.

(i) Finance expenses

Finance expense comprise bank charges.

(j) Income tax

The Institute is not subject to income tax.

4. Financial risk management

The financial statements do not disclose information relating to the nature and extent of risks arising from financial instuments to which the Institute is exposed at year end, since credit risk, liquidity risk and market fluctuatuions are not material to the Institute.

5. Contributions and grants

Contributions from stakeholders and grants that compensate the Institute for revenue and capital expenditure are recognised from deferred income as follows:

	2011 $	2010 $
African Caribbean and Pacific Group of States (ACP)	12,942	-
Contribution from the Fiji Government	258,812	682,892
European Union	71,435	870,895
Fiji Sugar Corporation (FSC)	249,318	642,270
Sugar Cane Growers	247,801	635,783
Mauritius Sugar Research Instititue (MISRI)	59,640	-
	899,948	2,831,840

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

6. Other income

Included in other income is $953,885 which relates to reversal of 2010 payable to FSC with respect to NIR charges. These charges are no longer payable by the Institute.

7.	Surplus from operations	2011		2010
		$		$
(a)	Surplus from operations has been arrived at after including the following items:			
	Auditors remuneration - audit	7,200	#	7,200
	- other services	8,878	#	4,861
	Board fees	35,875		36,750
	Depreciation	288,140		255,177
	FSC costs	562,102		1,392,913
	Gain on sale of property, plant and equipment	-	#	22,391
	Insurance	37,326		46,355
	Legal fees	3,742		10,786
(b)	**Personnel expenses**			
	Fiji National Provident Fund contributions	48,489		50,054
	Training and Productivity Authority of Fiji	4,647		4,897
	Key management compensation - short term benefits	143,449		143,449
	Wages and salaries	325,277		345,933
		521,862		544,333
8.	**Finance expense**			
	Bank charges	4,809		4,361

9. Income tax benefit / (expense)

In 2012 the Fiji Revenue and Customs Authority confirmed that the entity is not subject to income tax hence the 2010 income tax expense was reversed in 2011.

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

		2011 $	2010 $
11.	**Cash and cash equivalents**		
	Cash at bank	1,691,504	727,344
	Cash on hand	323	285
	Cash and cash equivalents in the statement of cash flows	1,691,827	727,629
12.	**Receivables and prepayments**		
	Receivable from European Union	-	42,131
	Other receivables	12,992	2,767
	Prepayments	300	3,569
		13,292	48,467
13.	**Deferred income**		
	Balance at the beginning of the year	3,736,273	3,052,836
	Funds received or receivable during the period	3,599,536	3,515,277
	Utilised during the period	(899,948)	(2,831,840)
	Balance at 31 December	6,435,861	3,736,273
	This is comprised as follows:		
	Contribution from stakeholders	4,218,463	2,445,577
	European Union grant	1,219,262	1,290,696
	African Caribbean and Pacific Group of States (ACP)	873,006	-
	Mauritius Sugar Research Instititue (MISRI)	125,130	-
		6,435,861	3,736,273
14.	**Employee benefits**		
	Balance at 1 January	33,060	35,108
	Net movement during the year	3,771	(2,048)
	Balance at 31 December	36,831	33,060
15.	**Trade and other payables**		
	Trade payables	67,334	26,287
	Other payables	48,529	28,540
	VAT payable	287,899	178,968
		403,762	233,795

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

16. Related parties

Related parties of the Institute include key stakeholders in the Fiji Sugar Industry, namely, the Government of Fiji, Fiji Sugar Corporation, South Pacific Fertilizers Limited, Sugar Cane Growers Fund and Sugar Cane Growers Council.
Transactions with these parties and outstanding balances at year end are disclosed below.

(a) Board members

The following are the Board members of the Institute during the financial year:

Dr John Morrison - Chairman
Sundresh Chetty
Viliame Gucake
Dr. Krishnamurthi
Suresh
Patel
Mangaiya Reddy
Seru Vularika

Board members emoluments and board expenses are disclosed under Note 7.

	2011 $	2010 $
(b) Amounts receivable from related parties		
Fiji Sugar Corporation	4,145,366	3,395,366
Sugar Cane Growers	1,350,000	900,000
	5,495,366	4,295,366
(c) Amounts payable to related parties		
Fiji Sugar Corporation	3,595,739	4,022,442
	3,595,739	4,022,442
(d) Transactions with related parties		
Revenue		
Grant income - Fiji Sugar Corporation	249,318	642,270
Grant income - Fiji Government	258,812	682,892
Grant income - Sugar Cane Growers	247,801	635,783
Grant received from African Caribbean and Pacific Group of States (ACP)	12,942	-
Grant received from Mauritius Sugar Research Instititue (MISRI)	59,640	-
Estate income - Fiji Sugar Corporation	825,001	755,201
	1,653,514	2,716,146
Expenses		
Fiji Sugar Corporation costs	562,102	1,392,913

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

10. Property, plant and equipment

	Land & Building	Fixtures & fittings	Plant & equipment	Motor vehicles		Computers		Work in progress	Total
		$	$	$		$		$	$
Cost									
Balance at 1 January 2010	-	33,665	551,947	991,179	#	238,037	#	356,725	2,171,553
Acquisitions	-	10,267	157,404	75,556		5,120		1,290,673	1,539,020
Disposals	-	-	-	(15,000)		-	#	-	(15,000)
Balance as at 31 December 2010	-	43,932	709,351	1,051,735	#	243,157	#	1,647,398	3,695,573
Acquisitions	-	-	137,848	-		-		417,021	554,869
Disposals	-	-	-	-		-		-	-
Transferred during the year	1,449,244	-	-	-		-		(1,449,244)	-
Balance as at 31 December 2011	1,449,244	43,932	847,199	1,051,735		243,157		615,175	4,250,442
Depreciation									
Balance at 1 January 2010	-	2,743	77,300	308,095		63,590		-	451,728
Depreciation charge	-	3,452	52,694	150,400		48,631		-	255,177
Disposals	-	-	-	(15,000)		-	#	-	(15,000)
Balance at 31 December 2010	-	6,195	129,994	443,495		112,221		-	691,905
Depreciation charge	21,916	4,394	70,779	142,422		48,629		-	288,140
Disposals	-	-	-	-		-		-	-
Balance at 31 December 2011	21,916	10,589	200,773	585,917		160,850	#	-	980,045
Carrying amount									
At 1 January 2010	-	30,922	474,647	683,084		174,447		356,725	1,719,825
At 31 December 2010	-	37,737	579,357	608,240		130,936		1,647,398	3,003,668
At 31 December 2011	1,427,328	33,343	646,426	465,818		82,307		615,175	3,270,397

Sugar Research Institute of Fiji
Notes to the financial statements
For the year ended 31 December 2011

16. Related parties (continued)

(e) Key management personnel

Key management personnel include the chief executive officer and finance and administration manager of the Institute.

Transactions with key management personnel are no favourable than those available, or which might be reasonably be expected to be available, on similar transactions to third parties on an arm's length.

Key management compensation is disclosed under Note 7(b).

17. Capital commitments and contingencies

Capital commitments and contingent liabilities as at 31 December 2011 amounted to $Nil (2010: $Nil).

18. Events subsequent to balance date

There has not arisen in the interval between the end of the year and the date of this report any item, transaction or event of a material and unusual nature likely, in the opinion of the Board members, to affect significantly the operations of the Institute, the results of those operations or the state of affairs of the Institute in subsequent financial years.

Disclaimer

The additional financial information presented on pages 19 to 21 is in accordance with the books and records of Sugar Research Institute of Fiji (the "Institute") which have been subjected to the auditing procedures applied in our statutory audit of the Institute for the year ended 31 December 2011. It will be appreciated that our statutory audit did not cover all details of the additional financial information. Accordingly, we do not express an opinion on such financial information and no warranty of accuracy or reliability is given.

In accordance with our firm policy, we advise that neither the Firm nor any member or employee of the Firm undertakes responsibility arising in any way whatsoever to any person (other than the Institute) in respect of such information, including any errors or omissions therein, arising through negligence or otherwise however caused.

22 September 2012
Nadi, Fiji Islands

KPMG
Chartered Accountants

Sugar Research Institute of Fiji
Statement of Operations
For the year ended 31 December 2011

	2011	2010
	$	$
Income		
Contribution from the Fiji Government	258,812	682,892
Fiji Sugar Corporation (FSC) contribution	249,318	642,270
Grant received from European Union	71,435	870,895
Grant received from African Caribbean and Pacific Group of States (ACP)	12,942	-
Grant received from Mauritius Sugar Research Instititue (MISRI)	59,640	-
Sugar Cane Growers contribution	247,801	635,783
Estate income	825,001	755,201
Gain on sale of property, plant and equipment	-	22,391
Sundry income	966,375	4,719
Total income	2,691,324	3,614,151
Less cost of operations		
Bank charges	4,809	4,361
Depreciation	288,140	255,177
Electricity	13,704	798
EU Cost	10,285	68,277
General supplies	2,937	3,322
Comunication expenses	11,004	10,227
Material costs	94,138	103,237
Miscellaneous expenses	-	-
Motor vehicle running expenses	177,194	185,531
Overhead expenses	820	3,056
Other running costs	-	-
Postage	21	59
RAF costs	9,626	17,438
Rent	3,300	7,475
Repairs and maintenances	24,498	40,015
Subcontract expenses	544,919	472,836
Travel	10,065	9,932
Wages and salaries	283,614	228,144
Total cost of operations	1,479,074	1,409,885
Balance carried forward	1,479,074	1,409,885

The above detailed statement of operations is to be read in conjunction with the disclaimer report set out on page 18.

Sugar Research Institute of Fiji
Statement of Operations
For the year ended 31 December 2011

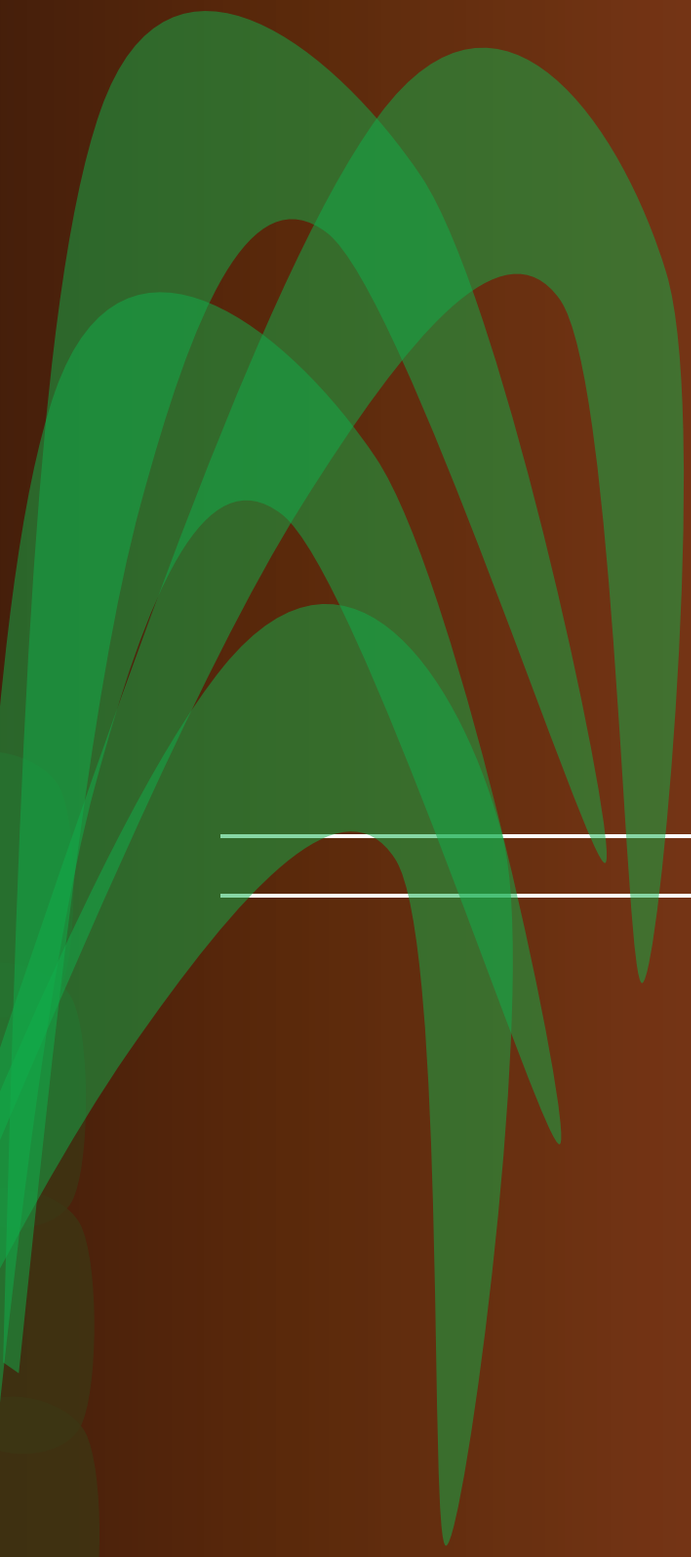
Balance brought forward	1,479,074	1,409,885
Administrative expenses		
Accommodation and meals	29,008	25,751
Auditors remuneration - audit	7,200	7,200
- other services	8,878	4,861
ACP Cost	11,127	
Board fees	35,875	36,750
Board allowances	-	-
Business licenses	-	216
CEO Donation	1,250	200
CEO Security	4,680	4,410
Consultanties	41,092	7,508
Electricity	13,681	4,048
Fees- Science Audit Committee	1,650	1,000
Fiji National Provident Fund contributions	48,489	50,054
FSC costs	562,102	1,392,913
General expenses	2,249	1,314
Hire of services	16,263	17,204
ICT consumables	4,979	7,193
ICT license	14,879	8,586
Communication expenses	17,740	16,368
Industrial relations expense	410	-
Insurance	37,326	46,355
Legal fees	3,742	10,786
Medical expense	18,032	14,958
Media and publication	4,950	7,619
MISRI Cost	54,794	
Freight	28,831	15,178
Rent	28,793	27,490
Repairs and maintenance	5,780	16,667
Stationery	6,724	7,067
Subscriptions	3,485	8,466
Training	2,451	-
Balance carried forward	1,016,460	1,740,162

The above detailed statement of operations is to be read in conjunction with the disclaimer report set out on page 18.

Sugar Research Institute of Fiji
Statement of Operations
For the year ended 31 December 2011

Balance brought forward	1,016,460	1,740,162
Training and Productivity Authority of Fiji	4,647	4,897
Travel	41,341	31,566
Tuition fees	3,808	-
VAT penalty	-	102,528
Visa permit	1,080	1,902
Water	9,362	12,413
Wages and salaries	185,112	261,238
Total administrative expense	1,261,810	2,154,706
Total expenditure	2,740,884	3,564,591
(Deficit) /Surplus for the year	**(49,560)**	**49,560**

The above detailed statement of operations is to be read in conjunction with the disclaimer report set out on page 18.



ANNUAL REPORT 2011

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