



SUGAR DIRECTORATE

**CANE AVAILABILITY SURVEY
REPORT**

2022/2023 – 2023/2024

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Accronyms and Abbreviations

<i>AFA</i>	<i>Agriculture and Food Authority</i>
<i>AFA-SD</i>	<i>Agriculture and Food Authority-Sugar Directorate</i>
<i>BSIL</i>	<i>Busia Sugar Industry Limited</i>
<i>CC</i>	<i>Crop Color</i>
<i>CD</i>	<i>Crop Density</i>
<i>CPD</i>	<i>Crop Pests and Diseases</i>
<i>CSC</i>	<i>Chemelil Sugar Company</i>
<i>CW</i>	<i>Crop Weeds</i>
<i>GIS</i>	<i>Geographic Information System</i>
<i>Ha</i>	<i>Hectare</i>
<i>KALRO-SRI</i>	<i>Kenya Agricultural and Livestock Research Organization-Sugar Research Institute</i>
<i>KISCOL</i>	<i>Kwale International Sugar Company Limited</i>
<i>MSC</i>	<i>Mumias Sugar (2021) Company</i>
<i>MUSCO</i>	<i>Muhoroni Sugar Company</i>
<i>NE</i>	<i>Nucleus Estate</i>
<i>NSC</i>	<i>Nzoia Sugar Company</i>
<i>ODK</i>	<i>Open Data Kit</i>
<i>OG</i>	<i>Out growers</i>
<i>PC</i>	<i>Plant Crop</i>
<i>R1</i>	<i>Ratoon One</i>
<i>R2</i>	<i>Ratoon Two</i>
<i>R3+</i>	<i>Ratoon Three & Above</i>
<i>RC</i>	<i>Ratoon Crop</i>
<i>SD</i>	<i>Sugar Directorate</i>
<i>SonySugar</i>	<i>South Nyanza Sugar Company</i>
<i>SRI</i>	<i>Sugar Research Institute</i>
<i>Tc</i>	<i>Tonnes cane</i>
<i>Tc/Ha</i>	<i>Tonnes Cane Per Hectare</i>
<i>TCD</i>	<i>Tones Cane Crushed Per Day</i>
<i>TSCL</i>	<i>Transmara Sugar Company Limited</i>
<i>WEKSCOL</i>	<i>West Kenya Sugar Company Limited</i>

Foreword from our Director



The data provides pertinent information with regard to sugarcane yield, varieties, crop cycles as well as cane available.

Willis M. Audi (Director - AFA ~ Sugar Directorate)

Sugar makes life taste a little sweeter. We take it every day to drive us for the day.

From granulated table sugar to jaggery, molasses, sugar syrup, ethanol, bagasse for paper and briquettes, the list is endless.

All these are produced from the sugarcane grown in Kenya where the crop thrives well in the Western, Coastal, Nyando and South Nyanza cane catchment areas.

Kenya provides a high potential for sugarcane growing under rain fed as well as irrigated conditions.

The Kenya Sugar Industry has produced over 700,000 metric tonnes of sugar within the past two years.

To support the sub-sector, AFA - Sugar Directorate's mandate is to promote, regulate and develop the sector.

We collate data with regard to cane availability annually and project the mill cane demand and supply. This is done in collaboration with sugar mills and KALRO- Sugar Research Institute.

The data provides pertinent information with regard to sugarcane yield, varieties, crop cycles as well as cane available.

Challenges and possible intervention measures are identified in order to keep the industry moving on a progressive trajectory aiming to attain a higher level through leveraging on yield enhancement technologies and cane development initiatives as indicated in our Cane Census Report 2022.



WILLIS M. AUDI

“Success is not final; failure is not fatal: It is the courage to continue that counts.” (Winston S. Churchill)

1.0 EXECUTIVE SUMMARY





1.1.

INTRODUCTION



The 2022 Industry cane availability survey was carried out in all 16 factory zones with a broad objective of assessing the status of sugarcane supply in the industry, identifying production constraints and projecting mill cane availability. The survey was undertaken in November 2022 guided by six (6) field enumeration teams who carried out visual assessment of cane to estimate the expected yields. The training of enumerators was conducted by staff from AFA-Sugar Directorate, KALRO-Sugar Research Institute and Environmental Systems Research Institute (ESRI).

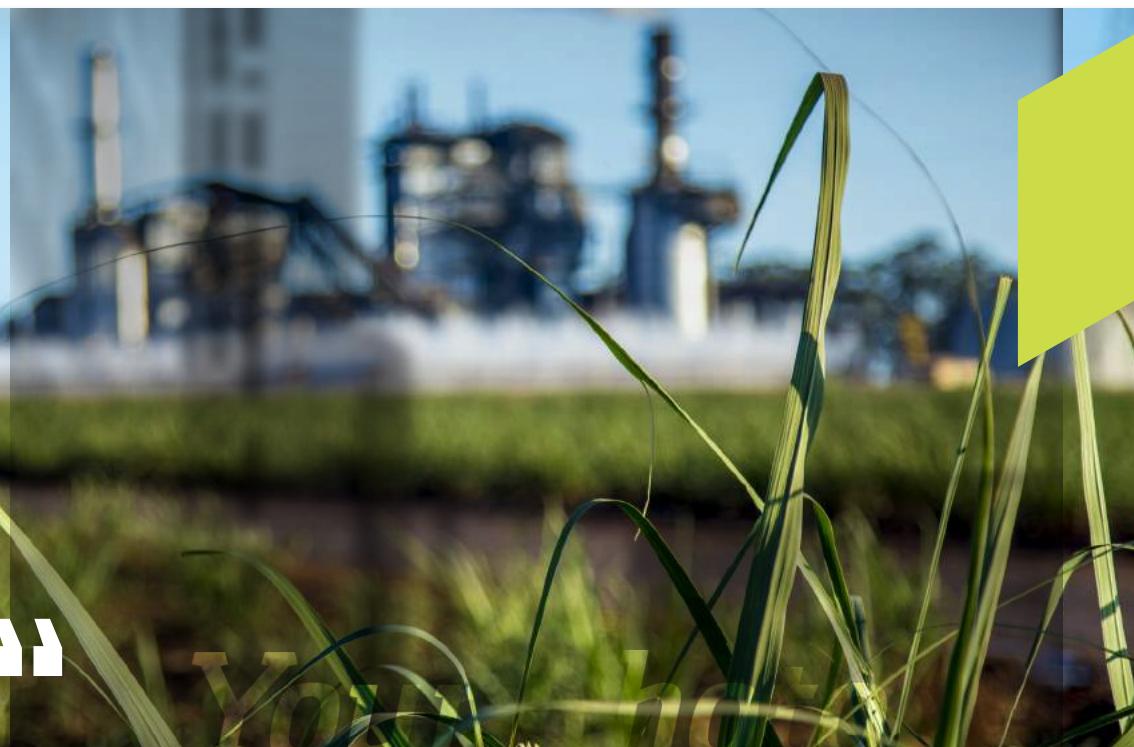
A productivity index ranging between 0 and 4 was applied to cane crop from the age of 3 months for crop vigour, crop colour, crop density, effects of weeds, pests and disease on yield. Summation of the scores was used to estimate zonal productivity using threshold yields of 100, 90, 80 and 70 tonnes per hectare for plant crop, ratoon 1, ratoon 2 and ratoon 3 respectively. Field data capture was done using a mobile application Open Data Kit (ODK) that is user friendly.

The surface area under cane increased by 6.72 % from 221,916 Ha in November 2021 to 236,820 Ha in November 2022. The increase in the area under sugarcane was witnessed in most of the factories. The West Kenya sugar factory catchment area reduced significantly, much of its area under cane in Bungoma and Trans Nzoia counties was apportioned to Naitiri Sugar factory, which began its operation in March 2022. Sukari, Kibos and Transmara sugar factory zones recorded significant increase in their area under cane.

The surface area under cane was distributed in 15 counties with Kakamega accounting for the highest proportion at 21.6% of the total, followed by Bungoma at 16.4%; Kisumu and Busia counties accounted for 12.4 % and 8.7% respectively. The Nucleus Estates account for only 6% of area under cane, whereas the Outgrowers occupy 94%.

The projected yield as at November 2022 is 70.27 (Tonnes/Ha), a reduction of 7.11% compared to the previous year's actual yield of 75.65 (Tonnes/Ha). This may be attributed to high cost of inputs and prolonged dry seasons experienced in the sugarcane growing zones.

“ 6,309,255 TONNES OF CANE WILL BE AVAILABLE FOR CRUSHING, COMPARED TO THE INDUSTRY’S MILL CANE REQUIREMENT OF 7,260,450 TONNES.



As of November 2022, the industry's PC: R1: R2: R3+ crop cycles ratio was 29:32:21:18, compared to the industry standard of 30:30:30:10 for consistent cane supply. The three (3) dominant varieties were CO 421 (36.58%), CO 945 (30.04%), and CO 617 (15.46%).

Based on the projections for the period December 2022 to June 2023, 6,309,255 tonnes of cane will be available for crushing, compared to the industry's mill cane requirement of 7,260,450 tonnes. This represents a cane deficit of 951,195 tonnes by the end of June 2023, according to cane census estimates.

During the season from July 2023 to June 2024, there will be 12,759,962 tonnes of cane available, compared to the industry's requirement of 12,627,600 tonnes, resulting in a surplus of 132,362 tonnes of cane.

Transmara, Butali, Naitiri, and Olepito sugar mills will have substantial cane supply surpluses whereas Kibos, SonySugar, Mumias, Sukari and Kwale will experience cane supply deficits.

Constraints to cane production such as inadequate resources for cane development among others were identified and possible mitigation measures were proposed.



1.2. Summary of Cane Census Exercise

1.2.1. Area Under Cane

Table 1a: Area under Cane and Yields

SUGAR ZONE	Area under cane (Ha)			Yields Tc/Ha)		
	Nov-22	Nov-21	% Variance	2022*	2021	% Variance
CHEMELIL	18,252	18,056	1.09	61.32	48.80	25.66
MUHORONI	15,404	15,263	0.92	65.40	61.99	5.49
MUMIAS	5,745	274	1,996.72	60.26	N/A	N/A
NZOIA	18,669	18,820	-0.80	60.98	61.49	-0.82
SOUTH NYANZA	8,863	9,054	-2.11	66.19	97.02	-31.78
KIBOS	9,322	8,056	15.71	74.17	67.50	9.89
SOIN	2,815	2,799	0.55	71.49	N/A	N/A
BUTALI	25,109	23,707	5.91	68.42	70.74	-3.28
WEST KENYA	41,000	58,926	-30.42	65.40	73.68	-11.23
MIWANI	1,177	1,615	-27.12	44.60	N/A	N/A
SUKARI	22,362	20,556	8.79	70.90	70.02	1.25
TRANSMARA	18,773	16,795	11.78	110.51	184.14	-39.99
KISCOL	7,467	7,287	2.47	70.34	N/A	N/A
OLEPITO	9,931	9,647	2.94	66.33	62.53	6.08
BUSIA	11,798	11,061	6.66	63.13	47.39	33.22
NAITIRI	20,134	N/A	N/A	68.69	N/A	N/A
TOTAL	236,820	221,916	6.72	70.27	75.65	-7.11

**Projected*

The area under cane as of November 2022 increased by 6.72 % from 221,916 Ha to 236,820 Ha reported in November 2021. This was majorly due to the expansion of the cane area in Kibos Sugar and Transmara, coupled with a new entrant Naitiri Sugar Company spurring the recruitment of new sugarcane farmers. Transmara Sugar Company equally recorded a significant increase in their area under sugarcane. Generally, there was an increase in the area under sugarcane across the sugar zone except for a few factories.

The industry's average productivity was projected at 70.27 Tc/Ha in November 2022 a decrease of 6.72 % compared to the previous year's actual average of 75.65 Tc/Ha. This may be attributed to the high cost of inputs and intermittent rains experienced in the sugarcane growing zones.



Table 1b: Area under Cane (Ha) and growers by Counties

COUNTY	Area under cane (Ha)			% COVER-AGE	NO. OF GROWERS	AVERAGE CANE PLOT SIZE
	OUT-GROWERS	NUCLEUS ESTATE	TOTAL			
KAKAMEGA	50,954	206	51,160	21.60	85,148	0.60
BUNGOMA	36,483	2,445	38,928	16.44	74,940	0.57
KISUMU	24,623	4,639	29,262	12.36	20,739	1.19
MIGORI	16,075	2,219	18,294	7.72	18,608	0.86
BUSIA	20,457	196	20,653	8.72	27,505	0.74
NAROK	20,123	33	20,156	8.51	19,642	1.02
NANDI	17,675	0	17,675	7.46	13,135	1.35
HOMABAY	10,725	0	10,725	4.53	11,834	0.91
KERICHO	10,096	428	10,524	4.44	10,640	0.95
KWALE	3,434	4,033	7,467	3.15	246	13.96
TRANS-NZOIA	6,560	0	6,560	2.71	1,824	3.60
UASIN GISHU	2,909	0	2,909	1.20	1,868	1.56
SIAYA	1,320	0	1,320	0.56	601	2.20
KISII	823	0	823	0.35	1,480	0.56
VIHIGA	363	0	363	0.15	804	0.45
TOTAL	222,620	14,200	236,820	100.00	289,014	0.77
% COVERAGE	94	6	100	-	-	-

The 236,820 Ha cane area was spread in 15 Counties in the following proportions – Kakamega 21.6 %, Bungoma 16.44 %, Kisumu 12.36 %, Migori 7.72%, Busia 8.72 %, Narok 8.51 %, Nandi 7.46%, Homabay 4.53 %, Kericho 4.44 %, Kwale 3.15 %, Trans-Nzoia 2.71%, Uasin Gishu 1.2%, Siaya 0.56%, Kisii 0.35 %, and Vihiga 0.15 %.

6% of the surface accounts for the Nucleus Estates and 94% of Outgrowers cultivated by 289,014 farmers.



Figure 1: Bar Graph Representation of Area Under Sugarcane (Ha) by Counties

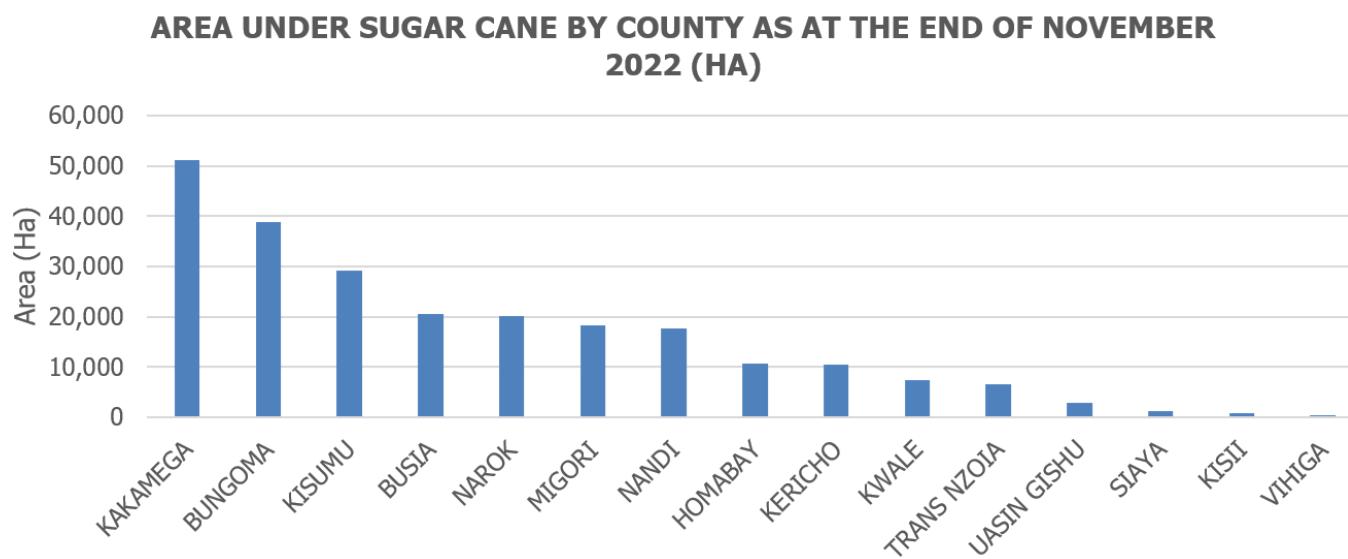
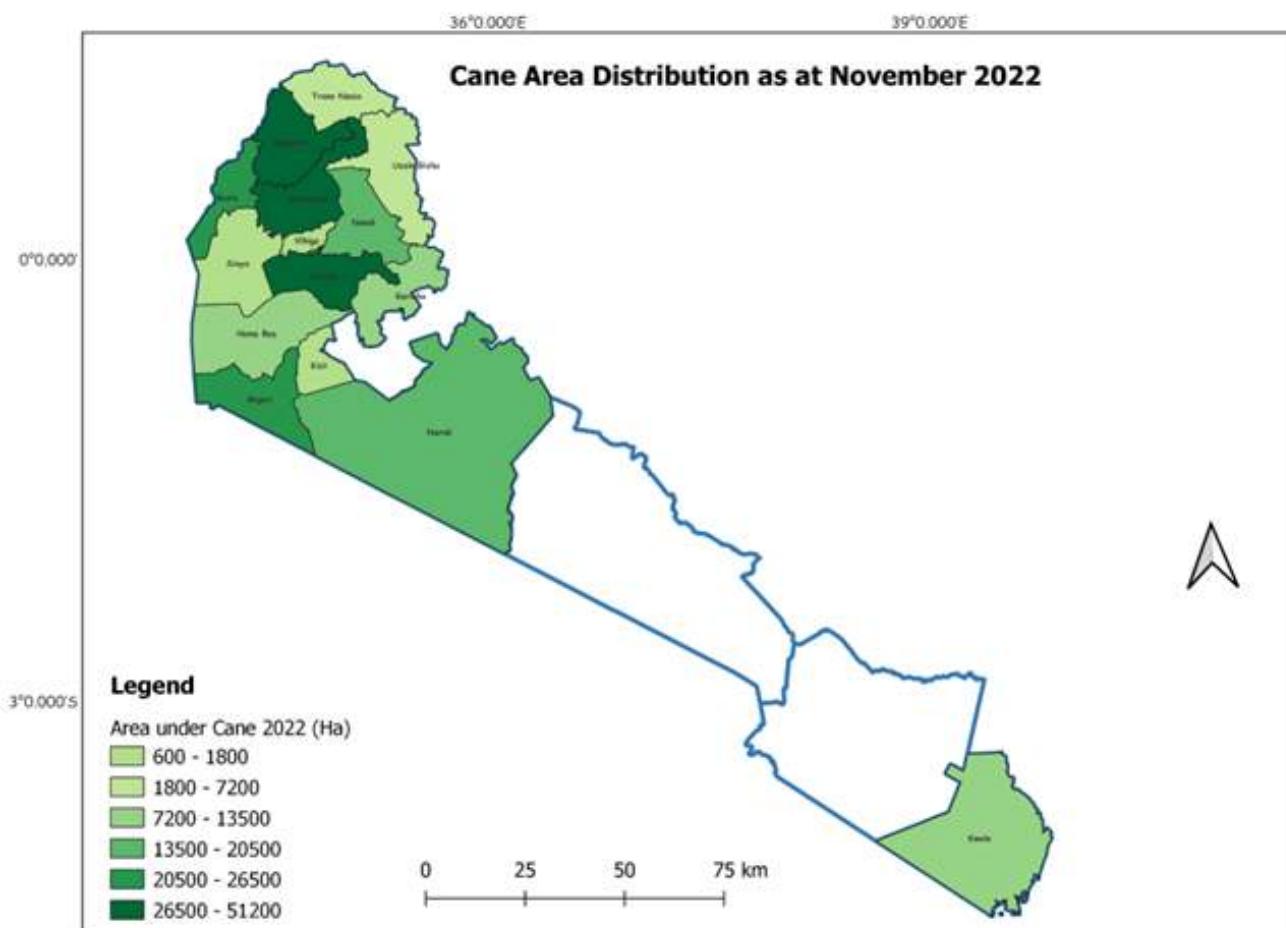


Figure 2: Sugarcane Growing Counties, Area Under Cane and Number of Growers





1.2.2. Area Under Cane by Crop Classes

Table 2: Area Under Cane by Crop Cycle (Ha)

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	62,608.08	4,613.74	67,221.82	28.39
R1	73,164.03	2,618.75	75,782.78	32.00
R2	47,150.47	1,982.45	49,132.92	20.75
R3+	39,697.04	4,985.23	44,682.27	18.87
TOTAL	222,620	14,200	236,820	100.00

The PC: R1:R2: R3+ crop cycles ratio in the industry was 29:32:21:18 in November 2022 against the industry standard of 30:30:30:10 for stable cane supply.

The high plant-to-ratoon crop proportion was indicative of sustained cane planting activities mainly by private mills. Sustained cane planting by all players would stabilize the required ratios for future sustainable cane supply.



1.2.2. Area Under Cane by Varieties

Table 3: Area Under Cane by Crop Cycle (Ha)

#	VARIETY	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
1	CO 421	84,102.75	2,534.64	637.39	36.58
2	CO 945	68,613.12	2,535.61	71,148.73	30.04
3	CO 617	34,169.43	2,431.22	36,600.65	15.46
4	N 14	7,350.36	220.81	7,571.17	3.20
5	D 84 84	5,486.41	456.12	5,942.53	2.51
6	CB 38/22	2,659.67	1,997.56	4,657.23	1.97
7	KEN 83-737	1,876.02	1,183.41	3,059.43	1.29
8	FR 95 2345	2,306.35	39.40	2,345.75	0.99
9	KEN 82 808	972.35	1,187.53	2,159.88	0.91
10	EAK 73 335	962.72	-	962.72	0.41
11	KEN 82 472	721.46	14.14	735.60	0.31
12	EAK 90 97	182.88	241.57	424.45	0.18
13	MS 98 21	3.54	376.78	380.32	0.16
14	CO 331	311.06	-	311.06	0.13
15	CO 1148	80.10	6.30	86.40	0.04
16	KEN 82 121	-	0.30	0.30	0.00
17	KEN 82 216	6.02	5.46	11.48	0.00
18	KEN 82 493	4.98	-	4.98	0.00
19	KEN 98 533	4.74	2.53	7.27	0.00
20	KEN 98 530	-	22.16	22.16	0.01
21	MS 2001 1100	-	7.38	7.38	0.00
22	OTHERS	12,339.11	400.41	12,739.52	5.38
23	MIXED	466.55	536.84	1,003.39	0.42
TOTAL		222,620	14,200	236,820	100.00

The 3 dominant varieties were CO 421 (37%), CO 945 (30%), and CO 617 (15%). The improved varieties occupy an estimated 10 % of the industry cane area.

The varieties CO 421, CO 617, and CO 945 accounted for large surface areas in the following cane-growing zones respectively; Western, Nyando, and South Nyanza.



1.2.4. Cane Availability Projection

Table 4: Cane Availability

SUGAR ZONE	DEC 2022 - JUN 2023			JUL 2023 - JUN 2024		
	MILL REQUIREMENT (TONNES)	AVAILABLE CANE (Tc)	SURPLUS/DEFICIT (Tc)	MILL REQUIREMENT (TONNES)	AVAILABLE CANE (Tc)	SURPLUS/DEFICIT (Tc)
CHEMELIL	410,000	207,116.69	(202,883)	700,000	919,828.41	219,828
MUHORONI	360,800	235,404.60	(125,395)	616,000	803,535.03	187,535
MUMIAS	362,500	202,283.58	(160,216)	625,000	198,720.09	(426,280)
NZOIA	390,000	238,331.15	(151,669)	650,000	934,591.96	284,592
SOUTH NYANZA	437,400	261,702.96	(175,697)	750,600	428,408.43	(322,192)
WEST KENYA	1,215,500	682,087.85	(533,412)	2,080,000	2,180,337.09	100,337
SOIN	-	59,544.07	59,544	-	144,688.73	144,689
KIBOS	700,000	203,987.85	(496,012)	1,200,000	550,559.08	(649,441)
BUTALI	480,000	713,491.23	233,491	825,000	1,085,801.67	260,802
SUKARI	748,000	1,000,847.90	252,848	1,280,000	1,013,561.03	(266,439)
TRANSMARA	700,000	1,401,268.10	701,268	1,200,000	1,632,816.35	432,816
MIWANI	-	23,566.94	23,567	-	30,456.00	30,456
KWALE	345,000	225,754.76	(119,245)	801,000	525,238.64	(275,761)
OLEPITO	140,250	265,523.96	125,274	240,000	488,898.29	248,898
BUSIA	410,000	77,592.26	(332,408)	700,000	667,931.09	(32,069)
NAITIRI	561,000	510,751.37	(50,249)	960,000	1,154,589.96	194,590
TOTAL	7,260,450	6,309,255	(951,195)	12,627,600	12,759,962	132,362

* Assuming the deficit/surplus by June 2023 is NOT carried forward and that surplus will be crushed by the factories with deficits.

It is projected, 6,309,255 tonnes of cane will be available for crushing between December 2022 and June 2023 against the industry mill cane requirement of 7,260,450 tonnes. This reflects a cane deficit of 951,195 tonnes by the end of June 2023.





During the 2023/24 season, 12,759,962 tonnes of cane will be available against the industry cane requirement of 12,627,600 tonnes resulting in a surplus of 132,362 tonnes.

Sukari Industries, Transmara Company, Butali Sugar Mills, Olepito, and Naitiri will have substantial cane supply surpluses whereas Kibos Sugar and Allied Industries, Busia Sugar, South Nyanza, Nzoia, West-Kenya, Mumias, Chemelil, and Kwale will experience cane supply deficits.

Generally, the industry will experience improved cane supplies if regional inter-mill cane transfers will be adopted to crush the over-mature cane noted in most of the zones.

1.3. Recommendations



Synchronise cane availability with factory cane requirement through cane development, in the meantime adopt structured inter-mill cane transfers between neighbouring mills experiencing surplus and deficit cane supply;



Adopt and enhance the propagation of local improved sugarcane varieties;



Implement seed cane development programs in all factory zones to avail clean planting material to growers;



Work towards restoring and sustaining a PC: 1R:2R:3R+ ratio of 30:30:30:10 for a stable cane supply;

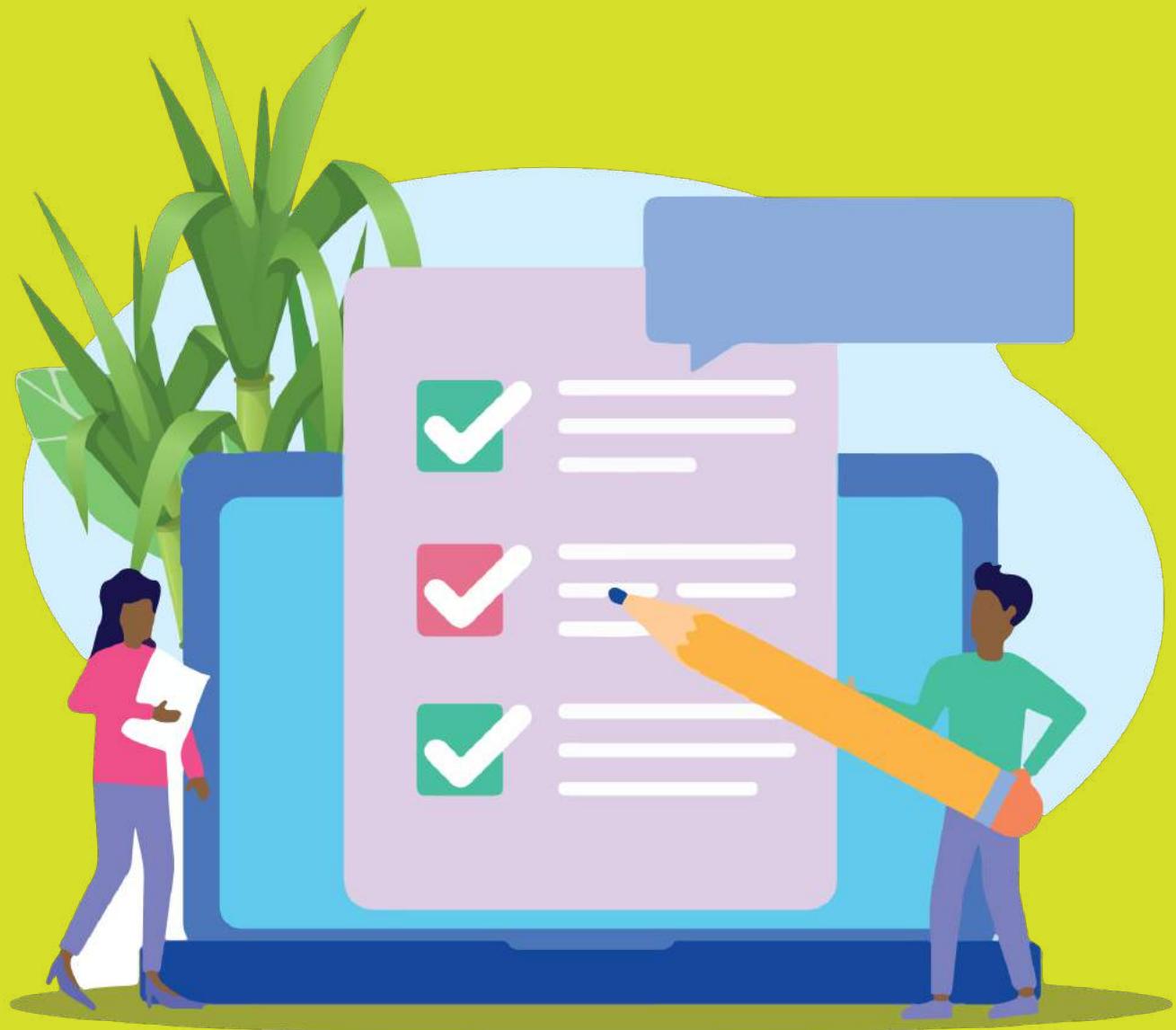


Adopt the best practices for yield enhancement in the industry;



Adopt prompt payment of farmers' proceeds for cane deliveries by all millers to facilitate early maintenance of subsequent ratoons.

2.0. CANE AVAILABILITY SURVEY, BACKGROUND AND APPROACH





2.1. INTRODUCTION

Six enumeration teams were constituted and each was assigned a cluster of factories as below:

TEAM	REGION	FACTORIES
1	Nyando 1	Chemelil, Kibos
2	Nyando 2	Muhoroni, Miwani, Soin
3	South Nyanza	Transmara, SonySugar, Sukari
4	Western A	West Kenya, Butali, Mumias, Naitiri
5	Western B	Nzoia, Busia, Olepito
6	Coast	Kwale International

During the survey, cane inventory data was provided by millers and enumerators estimated the productivity of the cane crop through physical observation in the fields for crop vigour, crop colour, crop density, effects of weeds to yield, and the impact of pests and diseases infestation.

2.2. TERMS OF REFERENCE

01

To establish the overall cane availability in the industry;

02

To determine the crop distribution by crop cycle, age and variety in all sugar zones;

03

To identify the constraints to cane production and develop mitigating strategies.

2.3. METHOD

- Enumerators were proportionately allocated to factories based on the area under cane in the catchments. Other considerations included average land holdings and expansiveness of the cane zone;
- Management of the respective mills was requested and recruited suitable personnel on behalf of AFA- Sugar Directorate;
- Enumerators were paired with mill staff to enhance plot identification and accuracy of data collected;
- Enumerators and mill staff were trained on yield estimation and the usage of the data collection tool;
- Millers provided cane inventories to guide random sampling of cane plots and plots details, the target sample size was at 30%;

Cane plots were randomly sampled based on characteristics such as size, varieties, age (month), crop cycle;

Factory mill coordinators assisted with logistical organization and preparation of summary factory reports;

Visual assessment of the crop was carried out and scored on a scale of 0-4 based on five parameters: Crop Vigor (CV), Crop Colour (CC), Crop Density (CD), Crop Weeds (CW), Crop Pests and Disease (CPD);

Data collected was transmitted in real-time to the central server in readiness for data analysis and report writing;

The duration of the survey was seven days, one day for the training of enumerators and six days for field data collection.



2.4. PERSONNEL

The cane survey activity was conceptualized and coordinated by Richard Magero. **Team leaders** - Beatrice Odiwa, Edwin Shikanda, Stanley Koech, George Otieno, and Evans Ong'injo; **Team members** - Elisha Mtogo, Shadrack Kiprono, Brian Omondi, Lytha Mayanja, John Kyule, Alvin Mwangi and David Ntoribi assisted by mill staff and enumerators.

3.0. SOIN SUGAR

Company Limited





3.1. Area Under Cane

3.1.1. Area Under Cane by Counties

Table 5: Area Under Cane by Counties - Soin

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
Kericho	SOIN/SIGOWET	2,814.5	-	2,814.5	3,000	0.94	100.00
	SUB-TOTAL	2,814.5	0	2,814.5	3,000	0.94	100.00
TOTAL		2,815	0	2,815	3,000	0.94	100.00

Kericho county is the sole cane supply catchment area for Soin Sugar Company.

3.1.2. Area Under Cane by Sector and Yields

Table 6: Area Under Cane by Sector and Yields - Soin

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	2,814.50	2,799.00	71.49	N/A
NUCLEUS	N/A	N/A	N/A	N/A
TOTAL	2,815	2,799	71.49	N/A

There was an increase of 1% in the area under cane from 2,799 Ha to 2,815 Ha as reported in November 2022.

This is attributed to timely harvesting and payment by neighbouring mills as a result of the new trans-loading sites in the zone.

The projected zonal yield of 71.49 Tc/Ha was close to the industry projected yield of 70 Tc/Ha.

3.1.3.

Area Under Cane by Crop Classes

Table 7: Area Under Cane by Crop Classes - Soin

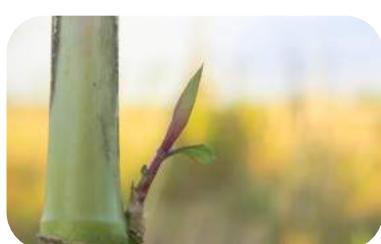
CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	1,501.00	0.0	1,501.00	53.33
R1	921.00	0.0	921.00	32.72
R2	106.00	0.0	106.00	3.77
R3+	286.50	0.0	286.50	10.18
TOTAL	2,815	0.0	2,814.50	100.00

The crop cycles PC: R1:R2:R3+ ratio was 53:33:4:10 against the industry standard of 30:30:30:10 for stable cane supply.

The high ratio of plant to ratoon crops could be attributed to timely harvesting and payment by the neighbouring mills.

3.1.4.

Area Under Cane by Varieties



CO 421 is the most popular variety occupying 62% followed by N14 and CO 945 at 9% each while the rest of the varieties occupy 20%. The sugarcane varieties mix in the zone is skewed towards CO421 due to its adaptability to the region.

Table 8: Area Under Cane by Varieties - Soin

VARIETY	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
CO 421	1,737.00	0.00	1,737.00	61.72
CO 945	254.00	0.00	254.00	9.02
CO 617	213.50	0.00	213.50	7.59
CB 38/22	117.00	0.00	117.00	4.16
N 14	258.50	0.00	258.50	9.18
KEN 83-737	234.50	0.00	234.50	8.33
TOTAL	2,815	0.00	2,815	100.00



3.1.5. Area Under Cane by Crop Ages

Table 9: Area Under Cane by Crop Ages - Soin

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	863.20	0.00	863.20	30.67
7 - 12	1,118.40	0.00	1,118.40	39.74
13 - 18	775.90	0.00	775.90	27.57
19+	57.00	0.00	57.00	2.03
TOTAL	2,815	0	2,815	100.00

The bulk of the crop (70 %) is at the age of 0 – 12 months and will be available during 2023/2024 season.

3.2. Cane Availability Projections

3.2.1. Cane Projection: December 2022 - June 2023



 Cane age available = 13 months and above

 Area under cane available = 2,815 Ha

 Cane available = 833 Ha x 71.49 Tc/Ha
= 59,544 tonnes.

 Mill cane requirement = 0 (Factory not operational)

The projected available cane will be milled by Kibos Sugar and Allied Industries and Muhoroni Sugar company

3.2.2. Cane Projection: July 2023 - December 2024

 Cane age available = (0 -12) + (PC, R1 & R2)
19+months

 Area under cane available = 2,815 Ha

 Cane available = 2,815 Ha x 71.49 Tc/Ha
= 144,689 tonnes.

 Mill cane requirement = 0 (Factory not operational)



The projected available cane will be milled by Kibos Sugar and Allied Industries and Muhoroni Sugar Company.



3.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Poor road network	Engage National and county government for funding
Low uptake of new varieties	Avail seed cane of improved varieties



4.0. BUTALI SUGAR Mills Limited





4.1. Area Under Cane

4.1.1. Area Under Cane by Counties

Table 10: Area Under Cane by Counties - Butali

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAME-GA	MALAVA	6,511.0	0	6,511.0	12,812	0.51	25.93
	NAVAKHOLO	4,160.0	0	4,160.0	4,281	0.97	16.57
	SHINYALU	1,115.0	0	1,115.0	1,066	1.05	4.44
	MUMIAS EAST	231.0	0	231.0	270	0.86	0.92
	LUGARI	3,856.0	0	3,856.0	4,111	0.94	15.36
	LIKUYANI	888.0	0	888.0	341	2.60	3.54
SUB-TOTAL		16,761.0	0	16,761.0	22,881	0.73	66.75
BUNGOMA	TONGAREN	785.0	0	785.0	412	1.91	3.13
	WEBUYE WEST	232.0	0	232.0	119	1.95	0.92
	WEBUYE EAST	164.0	0	164.0	202	0.81	0.65
	SUB-TOTAL	1,181.0	0	1,181.0	733	1.61	4.70
TRANS-NZOIA	KIMININI	242.0	0	242.0	109	2.22	0.96
	SUB-TOTAL	242.0	0	242.0	109	2.22	0.96
UASIN GISHU	TURBO	1,612.0	0	1,612.0	1,186	1.36	6.42
	SUB-TOTAL	1,612.0	0	1,612.0	1,186	1.36	6.42
NANDI	MOSOP	5,127.0	0	5,127.0	3,655	1.40	20.42
	CHESUMEI	186.0	0	186.0	29	6.41	0.74
	SUB-TOTAL	5,313.0	0	5,313.0	3,684	1.44	21.16
TOTAL		25,109	0	25,109	28,593	0.88	100.00

The cane supply catchment was in the Counties of Kakamega (67%), Nandi (21%), Uasin Gishu (6%), Bungoma (5%) and Trans Nzoia (1%).



4.1.2. Area Under Cane by Sector and Yields

Table 11: Area Under Cane by Sector and Yields - Butali

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	25,109.00	23,707.00	68.42	70.74
NUCLEUS	N/A	N/A	N/A	N/A
TOTAL	25,109	23,707	68.42	70.74

The area under cane increased from 23,707 Ha reported in November 2021 to 25,109 in November 2022 indicating a 5.91% rise.

This was majorly due to enhanced cane development in Bungoma County.

Productivity reduced by 3% down to 68.42% Tc/Ha from 70.74 Tc/Ha realized in 2021.



4.1.3. Area Under Cane by Crop Classes

Table 12: Area Under Cane by Crop Classes - Butali

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	9,285.00	0.00	9,285.00	36.98
R1	7,631.00	0.00	7,631.00	30.39
R2	5,416.00	0.00	5,416.00	21.57
R3+	2,777.00	0.00	2,777.00	11.06
TOTAL	25,109	0	25,109	100.00

The crop cycles PC: R1:R2: R3+ ratio was 37:30:22:11 against the industry standard of 30:30:30:10 for stable cane supply.

The high plant crop proportion could be attributed to enhanced cane planting initiatives in the zone.



4.1.4. Area Under Cane by Varieties

Table 13: Area Under Cane by Varieties - Butali

VARIETY	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	22,081.00	0.00	22,081.00	87.94
CO 945	682.00	0.00	682.00	2.72
D 84 84	1,254.00	0.00	1,254.00	4.99
CB 38/22	962.00	0.00	962.00	3.83
N 14	14.00	0.00	14.00	0.06
OTHERS	116.00	0.00	116	0.46
TOTAL	25,109	0	25,109	100.00



The preferred variety CO 421 occupied 88%, a slight reduction from the 90% coverage in 2021, CO 945 2.72%, D 84 84 coverage appreciated to 5% from 2021 at 3%, N 14 0.06% and others 0.46%.

Adoption of new improved locally bred varieties was still

low in the zone. Despite the dominance of variety CO 421 at 88% it is susceptible to the smut disease. We therefore recommend that Butali develops and adopts a variety diversification program.

4.1.5. Area Under Cane by Crop Ages

Table 14: Area Under Cane by Crop Ages - Butali

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	7,470.0	0.0	7,470	29.75
7 - 12	7,211.0	0.0	7,211	28.72
13 - 18	9,093.0	0.0	9,093	36.21
19+	1,335.0	0.0	1,335	5.32
TOTAL	25,109	0	25,109	100.00

Cane aged 19 months and above constitutes a total of 1,335 hectares; due for harvesting as at November 2022.



4.2. Cane Availability Projections

4.2.1. Cane Projection: December 2022 - June 2023



● Cane age available = 13 months and above

● Area under cane available = 10,428 Ha

● Cane available = $10,428 \text{ Ha} \times 68.42 \text{ Tc/Ha}$
 $= 713,491 \text{ tonnes}$

● Mill cane requirement at 2500 TCD = $192 \text{ days} \times 2500 \text{ TCD} = 480,000$

● Cane available surplus = $713,491 \text{ Tc} - 480,000 \text{ Tc}$
 $= 233,491 \text{ tonnes}$

A cane supply surplus of 233,491 Tonnes was projected by the end of June 2023.

4.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC, R1 \& R2)$
19+months

Area under cane available = 15,868 Ha

Cane available = $15,868 \text{ Ha} \times 68.42 \text{ Tc/Ha}$
 $= 1,085,801 \text{ Surplus from June 2023}$

Mill requirement at 2500 TCD =
330 days' x 2500 TCD = 825,000 tonnes

Cane supply surplus = $(1,085,801 - 825,000)$
 $= 260,802 \text{ tonnes}$



A cane supply surplus of 260,802 tonnes is projected by the end of June 2024. We recommend regional inter mill cane transfer to bridge cane deficiency in neighbouring mills.

4.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Poaching of cane	Zoning of cane areas
Lack of subsidized credit to farmers	Accessibility to affordable credit
Poor feeder roads	Cess fund to be utilized properly to maintain roads
Limited resources for cane development	Approach of commodity fund/Commercial banks

5.0. NZOIA SUGAR

Company Limited





5.1. Area Under Cane

5.1.1. Area Under Cane by Counties

Table 15: Area Under Cane by Counties - Nzoia

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAME-GA	MALAVA	3.20	0.00	3.20	7	0.46	0.02
	NAVAKHOLO	318.28	0.00	318.28	681	0.47	1.70
	SUB-TOTAL	321.48	0.00	321.48	688	0.47	1.72
BUNGOMA	TONGAREN	46.30	0.00	46.30	108	0.43	0.25
	BUMULA	617.62	0.00	617.62	772	0.80	3.31
	WEBUYE WEST	6,019.44	1,078.23	7,097.67	16,534	0.36	38.02
	WEBUYE EAST	1,303.68		1,303.68	2,937	0.44	6.98
	KIMILILI	667.54		667.54	1,264	0.53	3.58
	KANDUYI	4,908.66		6,275.77	13,013	0.38	33.62
	KABUCHAI	2,336.48		2,336.48	6,680	0.35	12.52
	SIRISIA	2.11		2.11	3	0.70	0.01
	SUB-TOTAL	15,901.83	2,445.34	18,347.17	41,311	0.38	98.28
TOTAL		16,223	2,445	18,669	41,999	0.39	100.00



The cane supply catchment for Nzoia sugar is in the counties of Bungoma (98.28%) and Kakamega (1.72%).



5.1.2. Area Under Cane by Sector and Yields

Table 16: Area Under Cane by Sector and Yields - Nzoia

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	16,223.31	16,419.00	56.97	62.86
NUCLEUS	2,445.34	2,401.00	68.97	12.75
TOTAL	18,669	18,820	60.98	61.49

The area under cane slightly reduced by 0.8% from 18,820 Ha registered in November 2021 to 18,669 Ha recorded in November 2022.

Likewise, the yield is projected to reduce from 61.49 Tc/Ha in November 2021 to 60.98 Tc/Ha in November 2022.



5.1.3. Area Under Cane by Crop Classes

Table 17: Area Under Cane by Crop Classes - Nzoia

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	559.23	667.91	1,227.14	6.57
R1	3,592.52	373.35	3,965.87	21.24
R2	4,619.58	322.45	4,942.03	26.47
R3+	7,451.98	1,081.63	8,533.61	45.71
TOTAL	16,223.31	2445.34	18,669	100.00

The crop cycles PC: R1:R2: R3+ ratio was 7:21:26:46 in November 2022 against the industry-recommended ratio of 30:30:30:10 for stable cane supply.

The low proportion of plant crops was a reflection of low cane development activities in the zone due to cash flow challenges

5.1.4. Area Under Cane by Varieties

Table 18: Area Under Cane by Varieties - Nzoia

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	8,044.71	1.38	8,046.09	43.10
CO 945	4,793.32	723.06	5,516.38	29.55
CO 1148	0.00	6.3	6.30	0.03
D 84 84	218.46	443.66	662.12	3.55
N 14	2,652.53	101.41	2,753.94	14.75
KEN 83-737	372.64	440.75	813.39	4.36
EAK 90 97	134.07	0	134.07	0.72
KEN 82 472	1.20	5.7	6.90	0.04
MS 98 21	3.54	376.78	380.32	2.04
MS 2001 1100	0.00	7.38	7.38	0.04
OTHERS	0.00	161.98	161.98	0.87
MIXED	2.84	176.94	179.78	0.96
TOTAL	16,223.31	2445.34	18,668.65	100.00



The dominant variety in Nzoia cane catchment is CO 421 which occupies 43%, CO 945 30%, N 14 15%, KEN 83-737 5%, D 84 84 4%, and others at 0.8 %.

Adoption of the locally improved varieties was low.

A concerted effort should be made to promote the locally bred varieties among farmers as the industry prepares to shift to a quality-based cane payment system.

5.1.5. Area Under Cane by Crop Ages

Table 19: Area Under Cane by Crop Ages - Nzoia

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	7,643.19	581.10	8,224.29	44.05
7 - 12	6,147.48	388.57	6,536.05	35.01
13 - 18	2,334.79	514.15	2,848.94	15.26
19+	97.85	961.52	1059.37	5.67
TOTAL	16,223.31	2445.34	18,668.65	100.00

The over-mature cane (19+) in the zone at the time of the survey accounted for 6% of the total cane area.



5.2. Cane Availability Projections

5.2.1. Cane Projection: December 2022 - June 2023



- Cane age available = 13 months and above
- Area under cane available = 3,909 Ha
- Cane available = $3,908 \text{ Ha} \times 60.98 \text{ Tc/Ha} = 238,331 \text{ tonnes}$
- Mill cane requirement at 2500 TCD = $156 \text{ days} \times 2,500 \text{ TCD} = 390,000 \text{ tonnes}$
- Cane supply deficit = $238,331 - 410,000 = (151,669) \text{ tonnes}$

We projected a cane supply deficit of 151,669 tonnes by June 2023.

5.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC, R1 \& R2)$
19+months



Area under cane available = 15,326 Ha



Cane available = $15,326 \text{ Ha} \times 60.98 \text{ Tc/Ha} = 934,592 \text{ Tonnes}$



Mill requirement at 2500 TCD =
260 days $\times 2,500 \text{ TCD} = 650,000 \text{ tonnes}$



Cane supply surplus = $(934,579 - 650,000) = 284,592 \text{ tonnes}$



We project a Cane supply surplus of 284,592 tonnes by June 2024.

We Recommend:

01

Plough out and replant advanced ratoon cane to normalize the crop cycles PC: R1:R2: R3+ ratio to the industry standard 30:30:30:10 for sustainable cane supply;

02

Sustained yield enhancement initiatives to enhance mill cane availability.

5.3. Cane Production Constraints and Possible Mitigations

CONSTRAINT	MITIGATION
Lack of fertilizer	Company to procure fertilizer
Inadequate cane development activities	Management to prioritize cane development activities
Land fragmentation	The National and County Governments to develop a policy on land use.
Competition from other enterprises	To enhance cane productivity through effective extension services.
Cane poaching of underage cane by competitors	<ul style="list-style-type: none"> • Competitors to develop their own cane. • Sensitization of farmers on adherence to harvesting standards

6.0. SOUTH NYANZA

Sugar Company Limited





6.1. Area Under Cane

6.1.1. Area Under Cane by Counties

Table 20: Area Under Cane by Counties - SonySugar

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
MIGORI	URIRI	1,535.24	0.00	1,535.24	2,000	0.77	17.32
	AWENDO	2,636.60	2218.91	4,855.51	4,000	0.66	54.78
	RONGO	385.21		385.21	530	0.73	4.35
	KURIA EAST	206.62		206.62	200	1.03	2.33
	KURIA WEST	8.36		8.36	3	2.79	0.09
	SUB-TOTAL	4,772	2,219	6,991	6,733	0.71	78.88
HOMABAY	RANGWE	61.94		61.94	59	1.05	0.70
	SUB-TOTAL	62	0.00	61.94	59	1.05	0.70
KISII	GUCHA	139.87			234	0.60	1.58
	SUB-TOTAL	140	0.00	139.87	234	0.60	1.58
NAROK	TRANSMARA WEST	1,670.36			800	2.09	18.85
	SUB-TOTAL	1,670	0.00	1,670.36	800	2.09	18.85
TOTAL		6,644	2,219	8,863	7,826	0.85	100.00



The raw material catchment for South Nyanza Sugar Company was in the counties of Migori (79%), Narok (19%), Kisii (2%), and Homabay (0.7%).

6.1.2. Area Under Cane by Sector and Yields

Table 21: Area Under Cane by Sector and Yields - SonySugar

	AREA UNDER CANE (HA)		CAN YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	6,644.20	6,651.00	66.11	118.45
NUCLEUS	2,218.91	2,403.00	66.37	46.76
TOTAL	8,863	9,054	66.19	97.02

The area under cane reduced by 2 percent from 9,054 Ha in 2021 to 8,863 Ha recorded in November 2022.

The decrease is attributed to the reduction in cane development in both the Nucleus Estate and Outgrower sectors.

The yield indicates a decrease from 97.02 Tc/Ha realized in November 2021 to 66.19 Tc/Ha projected in November 2022.



6.1.3. Area Under Cane by Crop Classes

Table 22: Area Under Cane by Crop Classes - SonySugar

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	964.65	702.31	1,666.96	18.81
R1	2,540.62	349.88	2,890.50	32.61
R2	2,340.41	301.3	2,641.71	29.81
R3+	798.52	865.42	1,663.94	18.77
TOTAL	6,644	2,219	8,863	100.00

The crop cycles PC:R1:R2:R3+ ratio was 19:33:30:18 against the industry standard of 30:30:30:10 for sustainable cane supply.

The low plant crop ratio in the zone could be attributed to low cane planting activities

in the zone as a result of inadequate funds. We recommend enhanced cane development activities to normalize the crop cycle ratio to the industry standard of 30:30:30:10 for PC, R1, R2, and R3+ respectively.



6.1.4. Area Under Cane by Varieties

Table 22: Area Under Cane by Varieties - SonySugar

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	638.13	25.16	663.29	7.48
CO 945	5,724.99	1302.37	7,027.36	79.29
CO 617	15.53	60.25	75.78	0.86
CB 38/22	10.27	117.96	128.23	1.45
N 14	61.95	28.43	90.38	1.02
KEN 83-737	57.28	487.81	545.09	6.15
EAK 90 97	13.70	40.04	53.74	0.61
OTHERS	122.35	156.89	279.24	3.15
TOTAL	6,644.20	2,218.91	8,863.11	100.00



The dominant sugarcane variety grown in the zone is CO 945 which occupies 79 percent, followed by CO 421 (7.5 percent).

It is recommended that the proportion of CO 945 be scaled down while the improved early maturing varieties be enhanced.

6.1.5. Area Under Cane by Crop Ages

Table 23: Area Under Cane by Crop Ages - SonySugar

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	1,987.96	681.25	2,669.21	30.12
7 - 12	1,688.59	551.59	2,240.18	25.28
13 - 18	1,484.36	525.00	2,009.36	22.67
19+	1483.29	461.07	1,944.36	21.94
TOTAL	6,644	2,219	8,863	100.00

The mature cane (19+) in the zone at the time of survey accounted for 22 percent.



6.2. Cane Availability Projections

6.2.1. Cane Projection: December 2022 - June 2023



- Cane age available = 13 months and above
- Area under cane available = 3,954 Ha
- Cane available = $3,954 \text{ Ha} \times 66.19 \text{ Tc/Ha} = 261,703 \text{ tonnes.}$
- Mill cane requirement at 2,700 = $162 \text{ days} \times 2,700 \text{ TCD} = 437,400 \text{ tonnes}$
- Cane supply deficit = $437,400 - 261,703 \text{ tonnes} = (175,697) \text{ tonnes}$

We project a cane supply deficit of 175,697 tonnes by June 2023.

6.2.2. Cane Projection: July 2023 - December 2024

$$\text{Cane age available} = (0 - 12) + (\text{PC, R1 \& R2}) \\ 19 + \text{months}$$



$$\text{Area under cane available} = 6,472 \text{ Ha}$$



$$\text{Cane available} = 6,472 \text{ Ha} \times 66.19 \text{ Tc/Ha} \\ = 428,408 \text{ tonnes}$$



$$\text{Mill requirement at 2,700 TCD} = 278 \text{ days} \\ \times 2,700 \text{ TCD} = 750,600 \text{ tonnes}$$



$$\text{Cane supply deficit} = (750,600 - 428,408) \\ = (322,192) \text{ tonnes}$$



We project a cane supply deficit of 322,192 tonnes by June 2024. The cane supply deficit will be acute and we recommend rigorous cane planting coupled with yield enhancement initiatives for improved raw material supply to the factory.

6.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Unhealthy competition with other millers (cane poaching)	<ul style="list-style-type: none">Competitors to develop their own cane.Sensitization of farmers on adherence to harvesting standards
Inadequate supply of improved seed cane material	KALRO-SRI and the miller to develop seed cane supply programs

7.0. TRANSMARA

Sugar Company Limited





7.1. Area Under Cane

7.1.1. Area Under Cane by Counties

Table 24: Area Under Cane by Counties - Transmara

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
MIGORI	MIGORI	1,144.30		1,144.30	2,502	0.46	6.10
	SUB-TOTAL	1,144.30	0.00	1,144.30	2,502	0.46	6.10
KISII	KISII	324.68			763	0.43	1.73
	SUB-TOTAL	324.68	0.00	324.60	763	0.43	1.73
NAROK	NAROK	17,270.98			18,307	0.94	92.18
	SUB-TOTAL	17,270.98	32.91	17,303.89	18,307	0.94	92.18
TOTAL		18,740	33	18,773	21,572	0.87	100.00



The raw material catchment for Transmara Sugar Company covers the counties of Narok (92.2%), Migori (6.1%), and Kisii (1.7%).

There was an increase in Narok County while Migori and Kisii had a reduction in area under cane.



7.1.2. Area Under Cane by Sector and Yields

Table 25: Area Under Cane by Sector and Yields - Transmara

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	18,739.96	16,760.00	110.51	184.14
NUCLEUS	32.91	35.00	-	-
TOTAL	18,773	16,795	110.51	184.14

The area under cane increased by 11.77% from 16,795 Ha in November 2021 to 18,773 Ha reported in November 2022.

This is attributed to a robust cane development programme in the outgrowers.

Cane yield indicates a decrease of 39% from 184.14 Tc/Ha in November 2021 to 110.51 Tc/Ha projected in November 2022 Ha.

The low zonal yields could be attributed to delayed cane harvesting hence crop deterioration. There is a need for the TSCL to consider factory capacity expansion to utilize the excess cane.



7.1.3. Area Under Cane by Crop Classes

Table 26: Area Under Cane by Crop Classes - Transmara

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	4,388.49	20.65	4,409.14	23.49
R1	8,479.33	5.01	8,484.34	45.19
R2	4,768.22	3.95	4,772.17	25.42
R3+	1,103.92	3.30	1,107.22	5.90
TOTAL	18,739.96	32.91	18,772.87	100.00

The crop cycles PC: R1:R2: R3+ ratio was 24:45:25:6 compared with the industry standard of 30:30:30:10 for stable cane supply. This implies that the vast crop is in R2 and R3.

We, therefore, recommend a review of the planting and harvesting model.

7.1.4. Area Under Cane by Varieties

Table 27: Area Under Cane by Varieties - Transmara

VARIETY	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	7,881.77	8.05	7,889.82	42.03
CO 945	5,246.14	11.7	5,257.84	28.01
CO 617	3.24	0.00	3.24	0.02
D 8484	3,811.98	1.65	3,813.63	20.31
CB 38-22	6.01	0.61	6.62	0.04
N 14	1,056.66	2.57	1,059.23	5.64
KEN 83-737	20.26	0.00	20.26	0.11
EAK 70- 97	23.31	0.00	23.31	0.12
KEN 82 - 121	0.00	0.30	0.30	0.00
KEN 82 - 472	644.06	0.24	644.3	3.43
KEN 82 - 493	4.98	0.00	4.98	0.03
KEN 98 -533	4.74	0.53	5.27	0.03
OTHERS	0.00	1.62	1.62	0.01
MIXED	36.81	5.64	42.45	0.23
TOTAL	18,739.96	32.91	18,772.87	100



The zonal dominant varieties CO 421 occupied (42%), CO 945 (28%), D 8484 (20.31%), N 14 (5.64%) KEN 82 472 (3.43%) among others.

The varieties diversification status in the Transmara zone is satisfactory though there is need to increase the area under improved varieties.

7.1.5. Area Under Cane by Crop Ages

Table 28: Area Under Cane by Crop Ages - Transmara

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	2,936.62	1.26	2,937.88	15.65
7 - 12	3,150.35	5.11	3,155.46	16.81
13 - 18	3,383.62	1.88	3,385.50	18.03
19+	9,269.37	24.66	9,294.03	49.51
TOTAL	18,739.96	32.91	18,772.87	100.00

The proportion of cane 19+ months was 49.51% indicating mature cane that requires harvesting.



7.2. Cane Availability Projections

7.2.1. Cane Projection: December 2022 - June 2023



● Cane age available = 13 months and above

● Area under cane available = 12,680 Ha

● Cane available = $12,680 \text{ Ha} \times 110.51 \text{ Tc/Ha} = 1,401,268 \text{ tonnes.}$

● Mill cane requirement at 4,000 TCD = $175 \text{ days} \times 4,000 \text{ TCD} = 700,000 \text{ tonnes}$

● Cane supply surplus = $(1,401,268 - 700,000) \text{ Tc} = 701,268 \text{ tonnes}$

We project a cane supply surplus of 701,268 tonnes by the end of June 2023.

7.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC, R1 \& R2)$
19+months

Area under cane available = 14,774 Ha

Cane available = $14,774 \text{ Ha} \times 110.51 \text{ Tc/Ha} = 1,632,816 \text{ tonnes.}$

Mill requirement at 4,000 TCD = $300 \text{ days} \times 4,000 \text{ TCD} = 1,200,000 \text{ tonnes}$

Cane surplus = $(1,632,816 - 1,200,000) = 432,816 \text{ tonnes}$



We project a cane surplus of 432,816 tonnes by June 2024. In general, the cane supply will be adequate for the Transmara Sugar Company Limited factory.



Overall crop stand in the Transmara sugar zone is good. However, farmers need to embrace the use of fertilizers in crop production.

The company may lose out on tonnage due to delayed harvesting of the crop. Plans, therefore, need to be put in place to mill over the mature cane. Arrowing was observed on CO 945 and this could negatively affect overall cane yield and pol% cane at harvest.

There is a need to enhance mill efficiency to utilize the excess raw material in this zone.

7.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Over mature cane	Enhance factory efficiency
Timely harvesting	KALRO-SRI and the miller to develop seed cane supply programs
High input costs	<ul style="list-style-type: none">• Seek for input subsidies• AFA to assist millers/farmers acquire subsidised inputs
Poor road network affecting transport	Avail resources to improve the road infrastructure
Undulating topography	Develop proper access roads
Double contracting of farmers from neighbouring farms especially Oloontare	Routine record updating
Rampant cane fires due to overmature cane	Timely harvesting
Poor distribution of cane crop cycles	Engage in a robust cane development programme

8.0. SUKARI

Industries Limited





7.1. Area Under Cane

8.1.1. Area Under Cane by Counties

Table 29: Area Under Cane by Counties - Sukari

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
MIGORI	URIRI	7,143.07	0.00	7,143.07	6,373	1.12	25.46
	AWENDO	1,884.50	0.00	1,884.50	2,397	0.79	6.72
	RONGO	682.66		682.66	940	0.73	2.43
	SUNA EAST	384.82		384.82	234	1.64	1.37
	KURIA EAST	1,333.46		1,333.46	525	2.54	4.75
	NYATIKE	1,283.12		1,283.12	1,287	1.00	4.57
	SUB-TOTAL	12,711.63	0.00	12,711.63	11,756	1.08	45.31
HOMABAY	NDHIWA	11,607.95		11,607.95	12,627	0.92	41.38
	RANGWE	1,789.07		1,789.07	2,144	0.83	6.38
	SUB-TOTAL	13,397.02	0.00	13,397.02	14,771	0.91	47.76
KISII	GUCHA	457.67			607	0.75	1.63
	SUB-TOTAL	457.67	0.00	457.67	607	0.75	1.63
NAROK	TRANSMARA WEST	1,485.81			672	2.21	5.30
	SUB-TOTAL	1,485.81	0.00	1,485.81	672	2.21	5.30
TOTAL		28,052	0	28,052	27,806	1.01	100.00



The raw material catchment for Sukari Industries Ltd was in the counties of Homabay (48%), Migori (45%), Narok (5.3%), and Kisii (1.7%).



8.1.2. Area Under Cane by Sector and Yields

Table 30: Area Under Cane by Sector and Yields - Sukari

	AREA UNDER CANE (HA)		CAN YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	22,361.93	20,556.00	70.90	70.02
NUCLEUS	N/A	N/A	N/A	N/A
TOTAL	22,361.93	20,556.00	70.90	70.02

The area under cane increased by 36 % from 20,556 Ha in November 2021 to 28,052.13 Ha in November 2022.

This was indicative of rigorous cane development activities in the zones of Wath Buru, Lambwe Valley, Oluoth Kimira, Got Adundo, Jangoe.

The projected cane yield increased by 1% from 70.02 Tc/Ha in November 2021 to 70.90 Tc/Ha in November 2022. These enhanced yields could be attributed to good rains received in 2021 as well as irrigation in Wath Buru.



8.1.3. Area Under Cane by Crop Classes

Table 31: Area Under Cane by Crop Classes - Sukari

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	10,958.02	0	10,958.02	49.00
R1	7,099.55	0	7,099.55	31.75
R2	3,664.28	0	3,664.28	16.39
R3+	640.08	0	640.08	2.86
TOTAL	22,362	0	22,362	100

The crop cycles PC: R1:R2: R3+ ratio was 49:32:16:3 compared with the industry standard of 30:30:30:10 for stable cane supply.

The higher plant crop proportion was indicative of increased cane planting in the zone.



8.1.4. Area Under Cane by Varieties

Table 32: Area Under Cane by Varieties - Sukari

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	7,078.21	0	7,078.21	31.65
CO 945	6,423.11	0	6,423.11	28.72
CO 617	307.37	0	307.37	1.37
N 14	959.58	0	959.58	2.95
OTHERS	7,893.66	0	7,893.66	35.30
TOTAL	22,362	0	22,362	100



Variety CO 421 was dominant and occupied (32%), CO 945 (29%), Others (35%), N 14 (3%) and CO 617(1%).

There is a need to introduce improved varieties to the zone.

8.1.5. Area Under Cane by Crop Ages

Table 33: Area Under Cane by Crop Ages - Sukari

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	2,643.35	0	2,643.35	11.82
7 - 12	5,601.97	0	5,601.97	25.05
13 - 18	7,895.02	0	7,895.02	35.31
19+	6,221.59	0	6,221.59	27.82
TOTAL	22,362	0	22,362	100

The proportion of cane that was 19+ months old was 28%.



8.2. Cane Availability Projections

8.2.1. Cane Projection: December 2022 - June 2023



● Cane age available = 13 months and above

● Area under cane available = 19,807 Ha

● Cane available = $19,807 \text{ Ha} \times 70.90 \text{ Tc/Ha} = 1,000,848 \text{ tonnes}$

● Mill cane requirement at 4,000 TCD = $187 \text{ days} \times 4,000 \text{ TCD} = 748,000 \text{ tonnes}$

● Cane surplus = $1,000,848 - 748,000 = 252,848 \text{ tonnes}$

We project a cane surplus of 252,848 tonnes by June 2023.

8.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC, R1 \& R2)$
19+months

Area under cane available = 19,777 Ha

Cane available = $19,777 \text{ Ha} \times 70.90 \text{ Tc/Ha} = 1,013,561 \text{ tonnes}$

Mill requirement at 4,000 TCD = $320 \text{ days} \times 4,000 \text{ TCD} = 1,280,000 \text{ tonnes}$

Cane supply deficit = $1,013,561 - 1,280,000 = (266,439) \text{ tonnes}$

We project a cane deficit of 266,439 tonnes by June 2024.





8.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Cane poaching	<ul style="list-style-type: none">• Competitors to develop their own cane.• Sensitization of farmers on adherence to harvesting standards
High cost of farm inputs	Avail subsidized inputs
Poor road infrastructure	County governments to maintain local roads.
Low adoption of improved varieties	Miller to collaborate with KALRO-SRI and AFA-SD on seed cane distribution models

9.0. KWALE INTERNATIONAL Sugar Company



9.1.1. Area Under Cane by Counties

Table 34: Area Under Cane by Counties - Kwale

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
Kericho	MSAMBWENI	154.9	3,367.4	3,522.4	12	12.91	47.17
	LUNGALUNGA	3,273.1	665.9		233	14.05	52.75
	MATUGA	5.5	0.0		1	5.45	0.08
	SUB-TOTAL	3,433.5	4,033.3	7,466.8	246	13.96	100.00
	TOTAL	3,434	4,033	7,467	246	13.96	100.00



The raw material catchment for Kwale International Sugar Company Ltd. (KISCOL) is Kwale county in the sub counties of Lungalunga (52.75%), Msambweni (47.17%) and Matuga (0.08%).



9.1.2. Area Under Cane by Sector and Yields

Table 35: Area Under Cane by Sector and Yields - Kwale

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	3,433.50	3,434.00	61.55	NA
NUCLEUS	4,033.29	3,853.00	77.89	NA
TOTAL	7,467	7,287	70.34	N/A

The area under cane increased by 2.5% from 7,287 Ha in November 2021 to 7,467 Ha reported in November 2022.

The increase in cane area in the Nucleus was due to planting of new cane fields while slight decrease in Outgrower sectors arose from ploughing out of advanced ratoons after harvesting.

We project a 12.8% decrease in productivity to 70.34 Tc/Ha from 80.63 Tc/Ha projected in 2021.



9.1.3. Area Under Cane by Crop Classes

Table 36: Area Under Cane by Crop Classes - Kwale

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	969.73	1,196.53	2,166.26	29.01
R1	936.25	1,200.54	2,136.79	28.62
R2	958.08	581.51	1,539.59	20.62
R3+	569.44	1,054.71	1,624.15	21.75
TOTAL	3,434	4,033	7,467	100.00

The crop cycles PC: R1:R2: R3+ ratio was 29:28:21:22 against the industry standard of 30:30:30:10 for sustainable cane supply.

9.1.4. Area Under Cane by Varieties

Table 37: Area Under Cane by Varieties - Kwale

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	2,324.88	2,439.88	4,764.76	63.81
CO 945	0.00	143.51	143.51	1.92
CB 38/22	0.00	2.83	2.83	0.04
N 14	0.00	69.78	69.78	0.93
KEN 83-737	119.59	16.03	135.62	1.82
KEN 82- 808	941.55	1,187.53	2,129.08	28.51
MIXED	47.48	173.73	221.21	2.96
TOTAL	3,434	4,033	7,467	100.00



The variety mix was satisfactory and its distribution was: CO 421 (63.81%), KEN 82-808 (28.51%), KEN 83-737 (1.82%), N 14 (0.93%), CO 945 (1.92%) and Mixed (2.96%) in small proportions.

Adoption of locally bred varieties was quite impressive at 28.51% in the zone.

9.1.5. Area Under Cane by Crop Ages

Table 38: Area Under Cane by Crop Ages - Kwale

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 7	1,328.54	2,928.91	4,257.45	57.02
8 - 13	1,808.86	1,001.22	2,810.08	37.63
14+	296.10	103.14	399.24	5.35
TOTAL	3,434	4,033	7,467	100.00

The proportion of cane at age cluster 14+months was at 5.35 % indicative of a decrease in mature cane availability from a high of 12.58% in the previous year

9.2. Cane Availability Projections

9.2.1. Cane Projection: December 2022 - June 2023



● Cane age available = 8 months and above

● Area under cane available = 3,209.32 Ha

● Cane available = $3,209.32 \text{ Ha} \times 70.34 \text{ Tc/Ha}$
= 225,754

● Mill cane requirement at 3,000 TCD = 115 days
 $\times 3,000 \text{ TCD} = 345,000 \text{ Tc}$

● Cane deficit = $225,743.56 \text{ Tc} - 345,000 \text{ Tc}$
= (119,245 Tonnes.)

We project a deficit of 119,245 tonnes in cane supply by June 2023

9.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 7) + (PC + IR + 2R)$
8 + Months

Area under cane available = 19,777 Ha

Cane available = $7,466.0 \text{ Ha} \times 70.34 \text{ Tc/Ha}$
= 525,239 Tonnes.

Mill requirement at 3,000 TCD = 267 days
 $\times 3,000 \text{ TCD} = 801,000 \text{ tonnes}$

Cane supply deficit = $525,239 - 801,000$
Tonnes = (275,761) tonnes



We project a cane supply deficit of 275,761 tonnes by June 2024. We thus recommend synchronised cane planting for sustainable supply of cane to the factory.



9.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
High cost of inputs	Government to exercise subsidies on farm inputs like fertilizers and herbicides.
Inadequate infrastructure development in the Outgrowers area-roads, culverts, bridges & drainage structures, electricity	AFA to lobby for challenge to be addressed by county government
High cost of land preparation in outgrowers	<ul style="list-style-type: none">• Roll out of subsidized land preparation programs in counties• Adoption of best practices
Soil moisture stress especially in the dry season of the year	Introduction of irrigation in the Outgrowers and ex-panding in the Nucleus Estate
Low adoption of proper seed cane preparation techniques	Farmers sensitization on proper seed cane preparation
Susceptibility of CO 421 to smut	Introduction of productive and smut resistant varie-ties

10.0. MUHORONI

Sugar Company





10.1. Area Under Cane

10.1.1. Area Under Cane by Counties

Table 39: Area Under Cane by Counties - Muhoroni

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KISUMU	MUHORONI	4,514.95	879.51	5,394.46	4,455	1.01	35.02
	NYANDO	3,046.15	0.00	3,046.15	2,965	1.03	19.78
	SUB-TOTAL	7,561.10	879.51	8,440.61	7,420	1.02	54.80
NANDI	TINDERET	835.89		835.89	1,987	0.42	5.43
	SUB-TOTAL	835.89	0.00	835.89	1,987	0.42	5.43
KERICHO	AINAMOI	665.33			587	1.13	4.32
	SOIN/SIGOWET	2,204.61			2,769	0.80	14.31
	KIPKELION WEST	2,829.07			2,288	1.24	21.15
	SUB-TOTAL	5,699.01	428.25	6,127.26	5,644	1.01	39.78
TOTAL		14,096	1,308	15,404	15,051	0.94	100.00



The cane area for Muhoroni Sugar Company Ltd. was spread in the counties of Kisumu (55%), Kericho (40 %) and Nandi (5%)

10.1.2. Area Under Cane by Sector and Yields

Table 40: Area Under Cane by Sector and Yields - Muhoroni

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	14,096.00	14,239.00	63.42	66.16
NUCLEUS	1,307.75	1,024.00	75.19	23.92
TOTAL	15,404	15,263	65.40	61.99

The area under cane marginally increased by 0.9% from 15,263 Ha in November 2021 to 15,404 Ha reported in November 2022.

We project yields to be at 65Tc/Ha representative of a 4% increase from 62% Tc/Ha realized in 2021.



10.1.3. Area Under Cane by Crop Classes

Table 41: Area Under Cane by Crop Classes - Muhoroni

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	1,263.43	749.12	2,012.55	13.07
R1	2,717.09	161.96	2,879.05	18.69
R2	3,100.02	118.21	3,218.23	20.89
R3+	7,015.46	278.46	7,293.92	47.35
TOTAL	14,096	1,308	15,404	100.00

The crop cycles PC: R1:R2: R3+ ratio was 13:19:21:47 against the industry standard of 30:30:30:10 for stable cane supply.

The low proportion of PC and high proportion of R3+ could be attributed to low cane development activities and cash flow challenges in the zone over time.



10.1.4. Area Under Cane by Varieties

Table 42: Area Under Cane by Varieties - Muhoroni

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	1,284.86	0	1,284.86	8.34
CO 945	538.78	8	546.78	3.55
CO 617	11,260.34	897.59	12,157.93	78.93
CO 1148	3.80	0	3.80	0.02
D 84 84	10.70	0.41	11.11	0.07
CB 38/22	396.00	282.39	678.39	4.40
N 14	19.30	0.7	20.00	0.13
KEN 83-737	546.28	30.83	577.11	3.75
CO 331	14.60	0	14.60	0.09
EAK 70 97	1.70	0	1.70	0.01
EAK 73 335	2.90	0	2.90	0.02
KEN 82 808	3.40	0	3.40	0.02
KEN 82 216	5.60	0	5.60	0.04
KEN 82 472	0.60	0	0.60	0.00
KEN 98 530	0	8.56	8.56	0.06
OTHERS	5.14	22.34	27.48	0.18
MIXED	2.00	56.93	58.93	0.38
TOTAL	14,096	1,308	15,404	100.00



The dominant variety was CO 617 occupied 79% of the total cane area. Others were CO 421 (8%), KEN 83-737 (4%), CB 38-22 (3%), CO 945 (3%) and others were less than 1%.

We recommend an expanded variety mix to include more improved early maturing varieties and reduce the proportion under CO 617.



10.1.5. Area Under Cane by Crop Ages

Table 43: Area Under Cane by Crop Ages - Muhoroni

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	6,918.26	692.16	7,610.42	49.41
7 - 12	3,971.08	222.53	4,193.61	27.22
13 - 18	2,393.21	361.11	2,754.32	17.88
19+	813.45	31.95	845.4	5.49
TOTAL	14,096	1,308	15,404	100.00

The proportion of cane that was 19+ months old was 5%, indicating a shortage in cane supply for milling. The area has young cane, as evidenced by the high percentage of (0 - 12) months-old at 77%.



9.2. Cane Availability Projections

10.2.1. Cane Projection: December 2022 - June 2023



Muhoroni Catchment

Cane age available = 13 Months and Above
Area under cane available = 3600 Ha
Cane Available = 3600 Ha x 65.4 Tc/Ha
= 235,205 Tonnes



Miwani Nucleus

Cane age available = 13 Months and Above
Area under cane available = 528 Ha
Cane Available = 528 Ha x 44.4 Tc/Ha
= 23,567 Tonnes

100% of Miwani Nucleus cane will be supplied to Muhoroni factory



Soin Catchment

Cane age available = 13 Months and Above
Area under cane available = 833 Ha
Cane Available = 833 Ha x 71.49 Tc/Ha
= 59,544/2 Tonnes = 29,772 tonnes

Sugarcane from the catchment will be shared equally between Kibos and Muhoroni Factories

Total available cane (i+ii+iii) = $(235,405 + 23,567 + 29,772) \text{ Tc} = 288,744 \text{ Tc}$

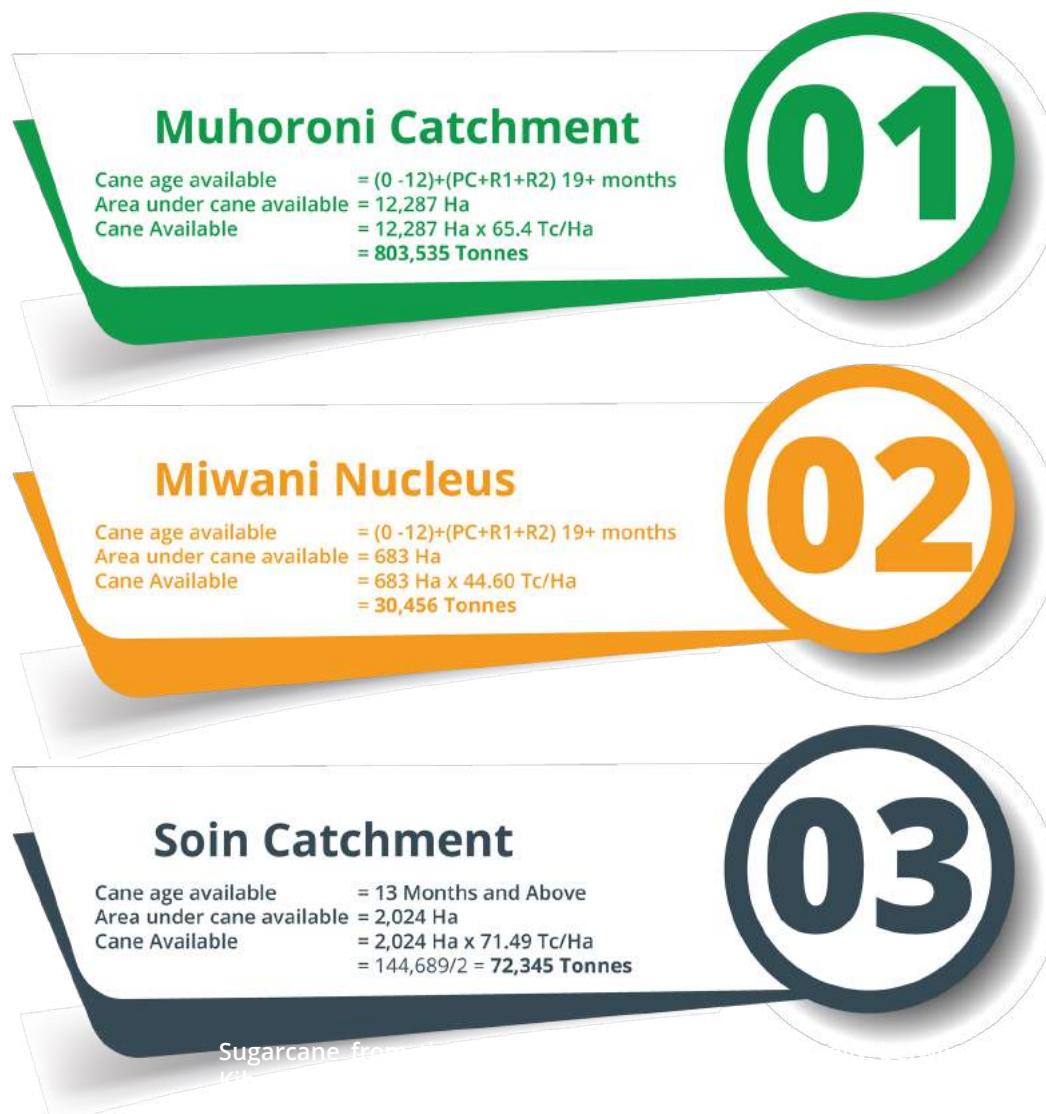
Mill requirement at 2,200 TCD = $164 \text{ days} \times 2,200 \text{ TCD} = 360,800 \text{ tonnes}$

Cane supply deficit = $288,744 - 360,800 = (72,056) \text{ tonnes}$

We project a cane supply deficit of 72,056 tonnes by the end of June 2023.



10.2.2. Cane Projection: December 2023 - June 2023



Total available cane (i+ii+iii) = $(803,535 + 30,456 + 72,345) \text{ Tc} = 906,336 \text{ Tc}$

Mill requirement at 2,200 TCD = $280 \text{ days} \times 2,200 \text{ TCD} = 616,000 \text{ tonnes}$

Cane supply deficit = $(906,336 - 616,000) = 290,336 \text{ tonnes}$

We project a supply surplus of 290,336 tonnes by June 2024 after including all the cane from Miwani Miwani Nucleus cane production and Soin Catchment area (50%).



10.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
High cost of inputs	<ul style="list-style-type: none">County to consider supporting farmers with subsidized fertilizerFederation to lobby County governments to allocate more funds to agriculture ministry vote
High cost of cane maintenance	<ul style="list-style-type: none">Pursue cost reduction strategies and technologies including minimum tillage and single eye budSugar Directorate to undertake the Sugar industry cost benefit analysis and share the recommendations
Inadequate machinery for land development	Review and develop asset replacement/ management policy
Poor road network in the zone	AFA to lobby road maintenance agencies and County government for funds allocation.
Delayed farmers payment	<ul style="list-style-type: none">Implement Sugar Regulation PolicyGovernment to support farmers payment arrears

11.0. MIWANI

Nucleus Estate



11.1. Area Under Cane

11.1.1. Area Under Cane by Counties

Table 44: Area Under Cane by Counties - Miwani

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KISUMU	MUHORONI	0	1,177.32	1,177.32	0	N/A	100.00
	SUB-TOTAL	0	1,177.32	1,177.32	0	N/A	100.00
	TOTAL	0	1,177.32	1,177.32	0	N/A	100.00

The Miwani Nucleus Estate is in Muhoroni sub-county, Kisumu County.

11.1.2. Area Under Cane by Sector and Yields

Table 45: Area Under Cane by Sector and Yields - Miwani

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	N/A	N/A	N/A	N/A
NUCLEUS	1,177	1,615.00	44.60	N/A
TOTAL	1,177	1,615	44.60	N/A

The area under cane declined by 27.11% to 1,177.32 Ha from 1,615.00 Ha reported in December 2021. This reflects low cane development activities in the zone.

We project a 12% decrease in yield to 30.34 Tc/Ha from 34.49 Tc/Ha realised in 2021. The projected yield of 44.60 Tc/Ha is significantly low compared with the industry

average yield of 70.27 Tc/Ha. This could be due to inadequate resources for cane development in the zone.

11.1.3. Area Under Cane by Crop Classes

Table 46: Area Under Cane by Crop Classes - Miwani

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	N/A	114.68	114.68	9.74
R1	N/A	102.61	102.61	8.72
R2	N/A	200.76	200.76	17.05
R3+	N/A	759.27	759.27	64.49
TOTAL	N/A	1,177	1,177	100.00

The crop cycles PC: R1:R2:R3+ ratio was 10:9:17:64 against the industry standard of 30:30:30:10 for stable cane supply.

The lower proportion of plant crop and higher proportion of R3+ could be due to low cane development activities in the zone over time.

11.1.4. Area Under Cane by Varieties

Table 47: Area Under Cane by Varieties - Miwani



The dominant varieties were; CO 617 (50%) and CO 945 (4%), CB 38-22 (19%), EAK 90-97 (15%), KEN 83-737 (7%) and mixed 5%.

The varieties were adequately diversified however, we recommend review to include early, medium and late maturing varieties in the varieties pool.

VARIETY	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
CO 945	N/A	44.89	44.89	3.81
CO 617	N/A	584.25	584.25	49.63
CB 38-22	N/A	219.48	219.48	18.64
KEN 83-737	N/A	80.13	80.13	6.81
EAK 70-97	N/A	174.43	174.43	14.82
OTHERS	N/A	16.20	16.20	1.38
MIXED	N/A	57.94	57.94	4.92
TOTAL	N/A	1,177	1,177	100.00



11.1.5. Area Under Cane by Crop Ages

Table 48: Area Under Cane by Crop Ages - Miwani

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	N/A	508.36	508.36	43.18
7 - 12	N/A	140.53	140.53	11.94
13 - 18	N/A	469.86	469.86	39.91
19+	N/A	58.57	58.57	4.97
TOTAL	N/A	1,177	1,177	100.00

The crop in the age cluster 19+ months occupied 5% of the cane area indicative of lack of overmature cane in the zone.

From the table above, the surface area for 0-12 months old cane occupies 55%. This is an indication that much of the cane will be available in the next financial year 2023/2024

11.2. Cane Availability Projections

11.2.1. Cane Projection: December 2022 - June 2023



 Cane age available = 13 months and above

 Area under cane available = 528 Ha

 Cane available = $528 \text{ Ha} \times 44.6 \text{ Tc/Ha} = 23,567 \text{ tonnes.}$

 Mill cane requirement = 0 (Factory not operational)

The projected available cane will be supplied to Muhoroni Sugar company

11.2.2. Cane Projection: July 2023 - December 2024

 Cane age available = $(0 - 12) + (PC, R1 \& R2)$
19+months

 Area under cane available = 683 Ha

 Cane available = $683 \text{ Ha} \times 44.6 \text{ Tc/Ha} = 30,456 \text{ tonnes.}$

 Mill cane requirement = 0 (Factory not operational)



The projected available cane will be supplied to Muhoroni Sugar company



11.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Delayed payment of cane pro-ceeds	Implement Sugar Regulations
Inadequate farm machinery	Commodities fund to provide loans
Inadequate supply of newly re-leased seed cane varieties	KALRO-SRI and AFA-SD to establish nurseries in Nu-cleus Estate
Poor ratoonability of newly re-leased varieties	Improve crop husbandry practices
Poor road network	Pursue collaboration with county government
Erratic rainfall pattern	Irrigation
Sand harvesting leading to soil depletion	Report to National Environment Management Authority

12.0. KIBOS SUGAR

and Allied Industries Limited





12.1. Area Under Cane

12.1.1. Area Under Cane by Counties

Table 49: Area Under Cane by Counties - Kibos

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAME-GA	BUTERE	32.16	-	32.16	72	0.45	0.34
	MUMIAS EAST	4.57	-	4.57	7	0.65	0.05
	MUMIAS WEST	3.77		3.77	6	0.63	0.04
	SUB-TOTAL	40.50	-	40.50	85	0.48	0.43
KISUMU	MUHORONI	5,395.91	72-5.00	6,120.91	3,138	1.72	65.66
	NYANDO	282.22	-	282.22	191	1.48	3.03
	KISUMU EAST	309.10		309.10	276	1.12	3.32
	KISUMU WEST	3.40		3.40	3	1.13	0.04
	SUB-TOTAL	5,990.63	725.00	6,715.63	3,608	1.66	72.04
SIAYA	UGUNJA	22.36	-	22.36	52	0.43	0.24
	SUB-TOTAL	22.36	-	22.36	52	0.43	0.24
NANDI	ALDAI	192.60	-	192.60	142	1.36	2.07
	TINDERET	1,773.36	-	1,773.36	985	1.80	19.02
	SUB-TOTAL	1,965.96	-	1,965.96	1,127	1.74	21.09
KERICHO	SOIN/SIGOWET	479.66	-	479.66	121	3.96	5.15
	KIPKELION WEST	98.10	-	98.10	33	2.97	1.05
	SUB-TOTAL	577.76	-	577.76	154	3.75	6.20
TOTAL		8,597	725	9,322	5,026	1.71	100.00

The distribution of area under cane per County was as follows: Kisumu (72%), Nandi (21%), Kericho (6.2%), Kakamega (0.43%) and Siaya (0.38%).

12.1.2. Area Under Cane by Sector and Yields

Table 50: Area Under Cane by Sector and Yields - Kibos

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	8,597.21	7,405.00	73.80	65.99
NUCLEUS	725.00	651.00	76.88	74.29
TOTAL	9,322	8,056	74.17	67.50

The area under cane increased by 16% from 8,056Ha in November 2021 to 9,322Ha as reported in November 2022. This was due to aggressive cane development campaigns in the outgrowers.

We project an increase of 10% in the yields to 74.17

from 67.5 Tc/Ha realised in 2021. This may be attributed to sufficient and well distributed rainfall received in 2022 as well as use of fertilizer.



12.1.3. Area Under Cane by Crop Classes

The crop cycles PC: R1:R2: R3+ ratio was 21:26:29:24 against the industry standard of 30:30:30:10 for stable cane supply. The high proportion of R3+ should be managed by re-establishment of new cane fields.

We recommend more cane development to match their current TCD of 4,000.

Table 51: Area Under Cane by Crop Classes - Kibos

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	1,263.43	749.12	2,012.55	13.07
R1	2,717.09	161.96	2,879.05	18.69
R2	3,100.02	118.21	3,218.23	20.89
R3+	7,015.46	278.46	7,293.92	47.35
TOTAL	14,096	1,308	15,404	100.00



12.1.4. Area Under Cane by Varieties

Table 52: Area Under Cane by Varieties - Kibos

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	84.29	0	84.29	0.90
CO 945	78.83	0	78.83	0.85
CO 617	7,261.35	460.63	7,721.98	82.83
CB 38-22	577.03	148.39	725.42	7.78
N 14	19.10	8.22	27.32	0.29
KEN 83-737	119.14	56.46	175.60	1.88
CO 331	271.40	0	271.40	2.91
EAK 73 -335	32.73	0	32.73	0.35
KEN 82 -216	0.42	5.46	5.88	0.06
KEN 82 -472	2.84	8.2	11.04	0.12
OTHERS	16.96	1.98	18.94	0.20
MIXED	133.12	35.66	168.78	1.81
TOTAL	8,597	725	9,322	100.00



The dominant variety was CO 617 (83%) followed by CB 38-22 (8%), CO 331 (3%), KEN 83-737 (2%), and the rest (4%).

We recommend the proportion of the dominant variety CO 617 be scaled down and increase the proportions of improved varieties.



12.1.5. Area Under Cane by Crop Ages

Table 53: Area Under Cane by Crop Ages - Kibos

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	3,385.80	386.8	3,772.60	40.47
7 - 12	2,609.31	190.20	2,799.51	30.03
13 - 18	1,575.70	139.2	1,714.90	18.40
19+	1,026.4	8.8	1,035.2	11.10
TOTAL	8,597	725	9,322	100.00

The cane crop age in the cluster (0-6) months was high at 41%. This is an indication that much of the cane will be available in the next financial year 2023/2024.

12.2. Cane Availability Projections

12.2.1. Cane Projection: December 2022 - June 2023



Kibos Catchment

Cane age available = 13 months and above
Area under cane available = 2,751 Ha
Cane available = 2,751 Ha x 74.17 Tc/Ha
= 203,988 tonnes

1



Soin Catchment

Cane age available = 13 months and above
Area under cane available = 833 Ha
Cane available = 833 Ha x 71.49 Tc/Ha
= 59,544 tonnes.

2

Total available cane (i+ii) = $203,988 + 59,544/2 = 233,760$

Mill requirement at 4,000 TCD = $175 \text{ days} \times 4,000 \text{ TCD} = 700,000 \text{ tonnes}$

Cane supply deficit = $233,760 - 700,000 = (496,012) \text{ tonnes}$

The projected cane supply deficit is at (496,012) tonnes by June 2023 after inclusion of cane supply from Soin catchment which shall be shared equally with Muhoroni.



12.2.2. Cane Projection: December 2023 - June 2024

Cane age available = (0-12)+(PC+R1+R2)19+ months

Area under cane available = 7,424 Ha

*Cane available = 7,424Ha x 74.17 Tc/Ha
= 550,559 tonnes*

KIBOS CATCHMENT

SOIN CATCHMENT

Cane age available = 1(0-12)+(PC+R1+R2)19+ months

Area under cane available = 2,024 Ha

*Cane available = 2,024 Ha x71.49 =144,689 tonnes/2
= 72,345 tonnes.*

Total available cane (i+ii) = 550,559 +72,345 Tc = 622,904 Tonnes

Mill requirement at 2,200 TCD = 300 days x 4,000 TCD = 1,200,000 Tonnes

TCD Cane supply deficit = 622,904 – 1,200,000 = (577,096) tonnes

With the inclusion of half of the cane supplies from Soin catchment, we project a cane supply deficit of (577,096) tonnes by June 2024.

Kibos will experience the highest cane deficit in the industry during the period under review.

To Improve Cane Supply We Recommend:

ONE

Rigorous cane development initiatives to increase the cane area commensurate with a 4,000 TCD plant;

TWO

Adopt and sustain yield enhancement initiatives.





12.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
High cost cane development	<ul style="list-style-type: none">• Government to subsidise cost of farm inputs and agricultural machinery• Adopt minimum tillage where possible
Poor adoption of improved cane varieties	<ul style="list-style-type: none">• Collaborate with KALRO-SRI and AFA-SD on suitable high yielding varieties for the zone.• Partner with relevant extension agents to ensure full adoption of the improved varieties
Land fragmentation to uneconomical sizes	AFA-SD to develop regulations that outline the minimum land size required for cane development
Poor ratoon maintenance by most farmers	<ul style="list-style-type: none">• Enforce quality harvesting standards to enhance good regrowth• Provide subsidized ratoon maintenance inputs
Rampant cane fires during dry periods	<ul style="list-style-type: none">• Efficient harvesting programs to reduce farmers rush to harvest the cane before the wet season• Stringent measures to punish arsonists who burn the cane to evict the leases
Mushrooming of Settlement and Real Estate within the traditional farmlands	<ul style="list-style-type: none">• Government to intervene by legislation to preserve farmland for farming activities only• Farmer organizations and Millers to be provided with low interest facilities or grants to acquire these lands for cane farming only

WEST KENYA SUGAR COMPANY LIMITED

13.0. KABRAS UNIT





13.1. Area Under Cane

13.1.1. Area Under Cane by Counties

Table 54: Area Under Cane by Counties - West Kenya

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAME-GA	MALAVA	7,985.50	0.00	7,985.50	17,874	0.45	19.48
	NAVAKHOLO	4,234.30	0.00	4,234.30	9,408	0.45	10.33
	SHINYALU	3,299.20	0.00	3,299.20	4,398	0.75	8.05
	IKOLOMANI	1,598.20	0.00	1,598.20	4,438	0.36	3.90
	BUTERE	1,498.30	0.00	1,498.30	2,416	0.62	3.65
	LURAMBI	2,168.90	0.00	2,168.90	3,941	0.55	5.29
	MUMIAS EAST	2,541.90	0.00	2,541.90	6,515	0.39	6.20
	LUGARI	2,879.30	0.00	2,879.30	2,399	1.20	7.02
	MATUNGU	1,892.10	0.00	1,892.10	3,784	0.50	4.61
	LIKUYANI	1,100.90	0.00	1,100.90	785	1.40	2.69
	MUMIAS.WEST	1,093.20	0.00	1,093.20	1,707	0.64	2.67
SUB-TOTAL		30,291.80	0.00	30,291.80	57,665	0.53	73.88
KISUMU	MUHORONI	984.35	0.00	984.35	1,093	0.90	2.40
	NYANDO	386.90	0.00	386.90	528	0.73	0.94
	KISUMU EAST	287.50	0.00	287.50	337	0.85	0.70
	SUB-TOTAL	1,658.75	0.00	1,658.75	1,958	0.85	4.05
BUNGOMA	BUMULA	765.14	0.00	765.14	968	0.79	1.87
	WEBUYE WEST	1,024.93	0.00	1,024.93	1,442	0.71	2.50
	KANDUYI	1,315.18	0.00	1,315.18	1,992	0.66	3.21
	SUB-TOTAL	3,105.25	0.00	3,105.25	4,402	0.71	7.57
UASIN GISHU	TURBO	1,297.02	0.00	1,297.02	682	1.90	3.16
	SUB-TOTAL	1,297.02	0.00	1,297.02	682	1.90	3.16
SIAYA	BONDO	700.45	0.00	700.45	75	9.34	1.71
		700.45	0.00	700.45	75	9.34	1.71

CONTINUE >



NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
NANDI	MOSOP	1,092.42	0.00	1,092.42	642	1.70	2.66
	NANDI HILLS	685.24	0.00	685.24	1,053	0.65	1.67
	ALDAI	238.91	0.00	238.91	297	0.80	0.58
	TINDERET	562.30	0.00	562.30	711	0.79	1.37
SUB-TOTAL		2,578.87	0.00	2,578.87	2,703	0.95	6.29
KERICHO	AINAMOI	291.68	0.00	291.68	593	0.49	0.71
	SOIN/SIGOWET	456.92	0.00	456.92	814	0.56	1.11
	BELGUT	256.29	0.00	256.29	435	0.59	0.63
	SUB-TOTAL	1,004.89	0.00	1,004.89	1,842	0.55	2.451
VIHIGA	HAMISI	362.90	0.00	362.90	804	0.45	0.89
	SUB-TOTAL	362.90	0.00	362.90	804	0.45	0.89
TOTAL		41,000	0	41,000	70,131	0.58	100.00

The raw material catchment for West Kenya Sugar Company Ltd. is expansive covering the Counties of Kakamega (44%), Bungoma (30%), Trans-Nzoia (12%), Nandi (5%), Kisumu (2%), Uasin Gishu (4%), Kericho (2%) and Vihiga (1%).



13.1.2. Area Under Cane by Sector and Yields

Table 55: Area Under Cane by Sector and Yields - West Kenya

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	40,999.94	58,926.00	65.28	73.68
NUCLEUS	N/A	N/A	N/A	N/A
TOTAL	41,000	58,926	65.28	73.68

There was a 30% decrease in area under cane from 58,926 Ha in November 2021 to 41,000 Ha in November 2022.

This was due to West Kenya ceding its area under cane to Naitiri Sugar Company which began operation in March 2022.

We project a decrease in productivity by 3% from 68.74 Tc/Ha achieved in 2021 to 65.28 Tc/Ha.



13.1.3. Area Under Cane by Crop Classes

Table 56: Area Under Cane by Crop Classes - West Kenya

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	14,349.06	0	14,349.06	35.00
R1	13,004.33	0	13,004.33	31.72
R2	9,791.92	0	9,791.92	23.88
R3+	3,854.63	0	3,854.63	9.40
TOTAL	41,000	0	40,999.94	100.00

The crop cycles ratios PC:R1:R2:R3+ was 35:32:24:9 which is in close conformity with the industry standard of 30:30:30:10 for stable cane supply.

We commend this and urge its improvement for continued sustainability of cane development.



13.1.4. Area Under Cane by Varieties

Table 57: Area Under Cane by Varieties - West Kenya

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	17,152.05	0	17,152.05	41.83
CO 945	16,260.94	0	16,260.94	39.66
D 84 84	26.07	0	26.07	0.06
N 14	392.64	0	392.64	0.96
EAK 73 335	824.59	0	824.59	2.01
KEN 82 472	65.60	0	65.60	0.16
FR 95 2345	2,208.05	0	2,208.05	5.39
OTHERS	4,070.00	0	4,070.00	9.93
TOTAL	41,000	0.00	41,000	100.00



The predominant variety from the field assessment was CO 421, (42%) followed closely by CO 945 (40%) and others (18%).

It is recommended that West Kenya increases varietal types in order to reduce the over reliance on the two major varieties.

13.1.5. Area Under Cane by Crop Ages

Table 58: Area Under Cane by Crop Ages - West Kenya

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	15,560.43	0	15,560.43	37.95
7 - 12	14,990.62	0	14,990.62	36.56
13 - 18	7,552.44	0	7,552.44	18.42
19+	2,896.45	0	2,896.45	7.06
TOTAL	41,000	0.00	41,000	100.00

Cane aged 19 months and above is 7% an indication of timely harvesting by the mill.
Cane availability Projections

13.2. Cane Availability Projections

13.2.1. Cane Projection: December 2022 - June 2023



 Cane age available = 13 months and above

 Area under cane available = 10,449 Ha

 Cane available = $10,449 \text{ Ha} \times 65.28 \text{ Tc/Ha}$
= 682,088 tonnes

 Mill cane requirement at 6,500 TCD = 187 days
 $\times 6,500 \text{ TCD} = 1,215,500 \text{ tonnes}$



Cane deficit = $1,215,500 - 682,088 \text{ Tc}$
= (533,412 tonnes)

We project a cane supply deficit of 533,412 tonnes by June 2023.

13.2.2. Cane Projection: July 2023 - December 2024

 Cane age available = $(0 - 12) + (PC + IR + 2R)$
19+ Months

 Area under cane available = 33,400 Ha

 Cane available = $33,400 \text{ Ha} \times 65.28 \text{ Tc/Ha}$
= 2,180,337 tonnes

 Mill requirement at 6,500 TCD = 320 days
 $\times 6,500 \text{ TCD} = 2,080,000 \text{ tonnes}$

 Cane surplus = $2,180,337 - 2,080,000$
Tonnes = 100,337 tonnes



We project a cane supply surplus of 100,337 tonnes by June 2024.

13.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Poor road network	Support of road equipment to companies required
Lack of cane development funds	Source for a financial institution to fund cane development.
Cane poaching	Every mill embark on intensive cane development

14.0. MUMIAS SUGAR

Company (2021) Limited





14.1. Area Under Cane

14.1.1. Area Under Cane by Counties

Table 59: Area Under Cane by Counties - Mumias

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAME-GA	NAVAKHOLO	567.44	0.00	567.44	593	0.96	9.88
	IKOLOMANI	65.20	0.00	65.20	56	1.16	1.13
	BUTERE	342.65		342.65	234	1.46	5.96
	LURAMBI	61.40		61.40	74	0.83	1.07
	MUMIAS EAST	826.39		1,009.28	716	1.15	17.57
	MATUNGU	367.94		367.94	290	1.27	6.40
	MUMIAS.WEST	88.50		111.69	92	0.96	1.94
SUB-TOTAL		2,319.52	206.08	2,525.60	2,055	1.13	43.96
BUSIA	NAMBALE	1,655.50	0.00	1,655.50	1,587	1.04	28.82
	TESO NORTH	205.10	0.00	205.10	74	2.77	3.57
	TESO SOUTH	977.99	0.00	977.99	859	1.14	17.02
	BUTULA	37.90	0.00	37.90	17	2.23	0.66
	SUB-TOTAL	2,876.49	0.00	2,876.49	2537.0	1.13	50.07
BUNGOMA	BUMULA	259.50	0.00	259.50	229	1.13	4.52
	KANDUYI	59.25	0.00	59.25	52	1.14	1.03
	SUB-TOTAL	318.75	0.00	318.75	281.0	1.13	5.55
SIAYA	UGENYA	9.60	0.00	9.60	15	0.64	0.17
	UGUNJA	14.60	0.00	14.60	10	1.46	0.25
	SUB-TOTAL	24.20	0.00	24.20	25	0.97	0.42
TOTAL		5,539	206	5,745	4,898	1.13	100.00

Mumias Sugar Company (2021) catchment area is in Kakamega County (43.96%, Busia (50.07%, Bungoma (5.53% and Siaya (0.42%).

14.1.2. Area Under Cane by Sector and Yields

Table 60: Area Under Cane by Sector and Yields - Mumias

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	5,538.96	N/A	59.15	NA
NUCLEUS	206.08	274.00	76.64	22.06
TOTAL	5,745	274	60.26	22.06

MSC (2021) have embarked on expansion in the outgrowers farms, resulting in area under cane in the Nucleus Estate and out growers standing at 5,745 Ha.

It's worth noting 274 Ha reported in November 2021 only captured the

Nucleus estate. A cumulative surface of 3,222 Ha of the Nucleus Estate remained fallow during the course of the year.

The projected yield of 60.26 Tc/Ha marked an improvement from 22.06 Tc/Ha recorded in 2021. This could be attributed to renewed cane supply from outgrowers fields which was unavailable during the previous year.



14.1.3. Area Under Cane by Crop Classes

Table 61: Area Under Cane by Crop Classes - Mumias

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	105.82	206.08	311.9	5.43
R1	2,809.76	0	2,809.76	48.91
R2	2,295.38	0	2,295.38	39.95
R3+	328.00	0	328	5.71
TOTAL	5,539	206	5745	100.00

The crop cycle ratio PC:R1:R2:R3+ was 5:49:40:6 against the industry standard of 30:30:30:10 for stable cane supply.

The high ratoon cane ratio implies a need for concerted effort in cane development.



14.1.4. Area Under Cane by Varieties

Table 62: Area Under Cane by Varieties - Mumias

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	82.25	0	82.25	1.43
CO 945	4,952.71	206.08	5,158.79	89.80
D 84 84	3.30	0	3.3	0.06
CB 38/22			0.00	0.00
N 14	21.10	0	21.1	0.37
KEN 83-737	134.90	0	134.9	2.35
EAK 73 335	97.70	0	97.7	1.70
FR 95 2345	24.90	0	24.9	0.43
MIXED	222.1	0	222.1	3.87
TOTAL	5,539	206	5,745	100.00



We recommend diversification of varieties to including early, medium and late maturing types to minimize the dominance of CO 945.

14.1.5. Area Under Cane by Crop Ages

Table 63: Area Under Cane by Crop Ages - Mumias

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	1,147.95	206.08	1,354.03	23.57
7 - 12	1,033.89		1,033.89	18.00
13 - 18	2,410.46		2,410.46	41.96
19+	946.66		946.66	16.48
TOTAL	5,539	206	5,745	100.00

There was a 23.57% increase in area under cane for cane aged 0-6 months which is noteworthy as the previous year (2021) had no cane in the signified age bracket.

14.2. Cane Availability Projections

14.2.1. Cane Projection: December 2022 - June 2023



- Cane age available = 13 months and above
- Area under cane available = 10,449 Ha
- Cane available = $3,357 \text{ Ha} \times 60.26 \text{ Tc/Ha} = 202,284 \text{ tonnes.}$
- Mill cane requirement at 2,500 TCD = $145 \text{ days} \times 2500 = 362,500 \text{ tonnes}$
- Cane deficit = $362,500 - 202,284 = (160,216) \text{ tonnes}$

We project a cane supply deficit of 160,216 tonnes by the end of June 2023.

14.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC + IR + 2R)$
19+ Months



Area under cane available = 3,298 Ha



Cane available = $3,298 \text{ Ha} \times 60.26 \text{ Tonnes} = 198,720 \text{ tonnes}$



Mill requirement at 2,500 TCD = $250 \text{ days} \times 2500 = 625,000$



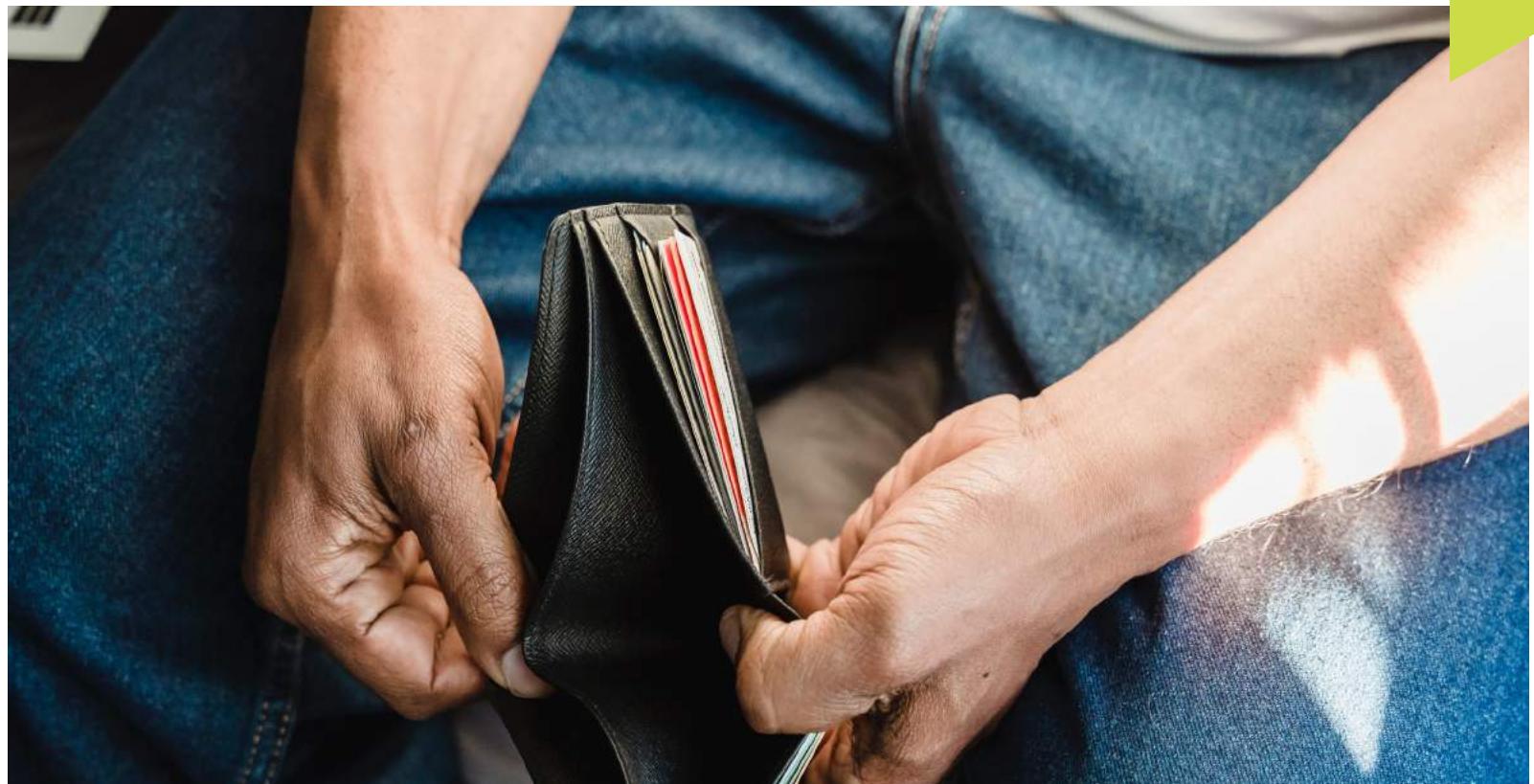
Cane deficit = $625,000 - 198,720 = (426,280) \text{ tonnes}$



We project a cane supply deficit of 426,280 tonnes by June 2024. Emphasis should be laid on rapid cane development for the sustainability of MSC (2021). The company is currently undertaking cane development in the Nucleus Estate. We propose the provision of extension packages to farmers in this zone focussing on adherence to good agricultural practices including the use of certified seed-cane and fertilizer application during cane development.



14.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Cane poaching	Beefing up security
Financial constraint	KCB is in the process of looking for an investor
Cane Fire	Beefing up security

WEST KENYA SUGAR COMPANY LIMITED

15.0. OLEPITO

Unit





15.1. Area Under Cane

15.1.1. Area Under Cane by Counties

Table 64: Area Under Cane by Counties - Olepito

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAMEGA	MATUNGU	421.0	0.0	421.0	477	0.88	4.24
	SUB-TOTAL	421.0	0.0	421.0	477	0.88	4.24
BUSIA	MATAYOS	657.0		664.4	760	0.86	6.69
	NAMBALE	1,312.0		1,343.0	1,769	0.74	13.52
	TESO NORTH	1,066.0		1,066.0	1,457	0.73	10.73
	TESO SOUTH	4,077.0		4,077.0	2,623	1.55	41.05
	BUTULA	969.0		969.0	1,399	0.69	9.76
	SUB-TOTAL	8,081.0	38.4	8,119.4	8,008	1.01	81.75
BUNGOMA	BUMULA	915.0			926	0.99	9.21
	SUB-TOTAL	915.0	0.0	915.0	926	0.99	9.21
SIAYA	UGUNJA	476.0			298	1.60	4.79
	SUB-TOTAL	476.0	0.0	476.0	298	1.60	4.79
TOTAL		9,893	38	9,931	9,709	1.02	100.00



West Kenya-Olepito Unit gets its raw materials from four Counties, namely Busia (82%), Bungoma (9%), Siaya (5%) and Kakamega (4%).

15.1.2. Area Under Cane by Sector and Yields

Table 65: Area Under Cane by Sector and Yields - Olepito

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	9,893.00	9,641.00	66.05	62.53
NUCLEUS	38.37	6.00	84.70	N/A
TOTAL	9,931	9,647	66.33	62.53

There was a slight increase in the area under cane by 2.94% from 9,647 Ha recorded in November 2021 to 9,931 Ha recorded in November 2022.

This could be attributed to cane development activities in the zone. Cane yield was projected at

66.33 Tc/Ha, an increase of 6% from 62.53 Tc/Ha realized in 2021. The projected yield increase could be attributed to favourable weather and good crop management practices.



15.1.3. Area Under Cane by Crop Classes

Table 66: Area Under Cane by Crop Classes - Olepito

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	2,308.74	31.45	2,340.19	23.56
R1	3,387.57	0.8	3,388.37	34.12
R2	2,182.51	6.12	2,188.63	22.04
R3+	2,014.18	0	2,014.18	20.28
TOTAL	9,893	38	9,931	100.00

The crop cycles PC:R1:R2:R3+ ratios were 24:34:22:20 against the industry standard of 30:30:30:10 for sustainable cane supply.

The high proportion of ratoon 3+ should be managed through re-establishment of new cane fields.



15.1.4. Area Under Cane by Varieties

Table 67: Area Under Cane by Varieties - Mumias

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	1167	6.772	1173.772	11.82
CO 945	8585	31.6	8616.6	86.76
D 84 84	4		4	0.04
CB 38/22	22		22	0.22
N 14	115		115	1.16
KEN 83-737			0	0.00
TOTAL	9,893	38	9,931	100.00



The dominant variety was CO 945 which covered 87% of the cane area followed by CO 421 at 12% and others at 1%. There is a need to promote improved varieties.

15.1.5. Area Under Cane by Crop Ages

Table 68: Area Under Cane by Crop Ages - Mumias

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	2,897.61	13.80	2,911.41	29.32
7 - 12	2,992.27	24.57	3,016.84	30.38
13 - 18	2,092.98	0	2,092.98	21.07
19+	1,910.15	0	1,910.15	19.23
TOTAL	9,893	38	9,931	100.00

The proportion of cane 19+ months old was 19% an indication of over mature cane in some parts of the zone during the census exercise period.

15.2. Cane Availability Projections

15.2.1. Cane Projection: December 2022 - June 2023



- Cane age available = 13 months and above
- Area under cane available = 4,004 Ha
- Cane available = $4,004 \text{ Ha} \times 66.33 \text{ Tc/Ha} = 265,524 \text{ tonnes}$
- Mill cane requirement at 750 TCD = 187 days' $\times 750 \text{ TCD} = 140,250 \text{ tonnes}$
- Cane surplus = $265,524 - 140,250 = 125,274 \text{ tonnes}$

We project a cane supply surplus of 125,274 tonnes by June 2023.

15.2.2. Cane Projection: July 2023 - December 2024

$$\text{Cane age available} = (0 - 12) + (PC + IR + 2R) \\ 19 + \text{Months}$$

$$\text{Area under cane available} = 33,400 \text{ Ha}$$

$$\text{Cane available} = (7,371 \text{ Ha} \times 66.33 \text{ Tc/Ha}) \\ \text{tonnes}$$

$$\text{Mill requirement at 750 TCD} = 320 \text{ days} \times \\ 750 \text{ TCD} = 240,000 \text{ tonnes}$$

$$\text{Cane surplus} = (488,898 - 240,000) = \\ 248,898 \text{ tonnes}$$



From the calculated projection there will be a cane supply surplus of 248,898 tonnes by June 2024. The recommendation is that timely measures be put in place to manage the projected cane surplus to avoid challenges associated with cane oversupply such as delayed harvesting.



15.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Poaching by other millers	Stringent measures to be affected by the regulating body.

16.0. BUSIA SUGAR

Industry Limited



16.1. Area Under Cane

16.1.1. Area Under Cane by Counties

Table 69: Area Under Cane by Counties - Busia

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KAKAMEGA	MUMIAS	476.6	0.0	476.6	653	0.73	4.04
	MATUNGU	322.1			644	0.50	2.73
	SUB-TOTAL	798.7	0.0	798.7	1,297	0.62	6.77
BUSIA	MATAYOS	2,098.1		2,165.1	3,609	0.58	18.35
	NAMBALE	3,568.1		3,568.1	6,996	0.51	30.24
	TESO NORTH	628.0		635.2	1,095	0.57	5.38
	TESO SOUTH	2,660.4		2,742.5	3,975	0.67	23.25
	BUTULA	471.6		473.1	1,126	0.42	4.01
	FUNYULA	73.1		73.1	159	0.46	0.62
	SUB-TOTAL	9,499.3	157.8	9,657.1	16,960	0.56	81.86
	BUMULA	1,053.6			2,107	0.50	8.93
BUNGOMA	KANDUYI	191.5			426	0.45	1.62
	SUB-TOTAL	1,245.1	0.0	1,245.1	2,533	0.49	10.55
SIAYA	UGENYA	96.9			151	0.64	0.82
	SUB-TOTAL	96.9	0.0	96.9	151	0.64	0.82
TOTAL		11,640	158	11,798	20,941	0.56	100.00

The raw material catchment for Busia Sugar Industry Limited (BSIL) was in the Counties of Busia (81.9%), Bungoma (10.5%), Kakamega (6.8%) and Siaya (0.8%).



16.1.2. Area Under Cane by Sector and Yields

Table 70: Area Under Cane by Sector and Yields - Busia

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	11,640.00	10,943.00	63.01	47.39
NUCLEUS	157.80	118.00	71.13	N/A
TOTAL	11,798	11,061	63.13	47.39

The area under cane increased by 7% primarily in the Outgrowers to 11,798 Ha from 11,061 Ha reported in November 2021. This is attributed to increased cane development activities.

We project a 2% increase in yield to 63.13 Tc/Ha

from 61.62 Tc/Ha realized in 2021. The improvement in projected yield may be attributed to good rains received in 2022.



16.1.3. Area Under Cane by Crop Classes

Table 71: Area Under Cane by Crop Classes - Busia

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	3,363.90	94.7	3,458.60	29.32
R1	4,606.80	35.7	4,642.50	39.35
R2	2,647.00	27.2	2,674.20	22.67
R3+	1,022.30	0.2	1,022.50	8.67
TOTAL	11,640	158	11,798	100

The crop cycles PC:R1:R2:R3+ ratios was 29:39:23:9 against the industry standard of 30:30:30:10 for stable cane supply.

We recommend enhanced cane planting over time to increase cane area commensurate with

a 3,000 TCD factory. This will also restore the crop cycles ratios to the desired industry standard.



16.1.4. Area Under Cane by Varieties

Table 72: Area Under Cane by Varieties - Busia

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	282.30	40.7	323.00	2.74
CO 945	11,069.50	40.8	11,110.30	94.17
D 84 84	68.90	0.4	69.30	0.59
KEN 83-737	118.90	26.9	145.80	1.24
EAK 73 335	4.80	0	4.80	0.04
FR 95 2345	73.40	39.4	112.80	0.96
MIXED	22.2	9.6	31.80	0.27
TOTAL	11,640	158	11,798	100.00



The dominant variety was CO 945 at 94% coverage of the cane area followed by CO 421 (3%) and others 3%.

The cane varieties were not well distributed as captured above. We ,therefore, recommend a diversified variety distribution initiative.

16.1.5. Area Under Cane by Crop Ages

Table 73: Area Under Cane by Crop Ages - Busia

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 - 6	6,767.00	49.8	6,816.80	57.78
7 - 12	3,690.60	61.40	3,752.00	31.80
13 - 18	1,170.80	46.6	1,217.40	10.32
19+	11.6	0	11.6	0.10
TOTAL	11,640	158	11,798	100

The crop in the age cluster 19+ months occupied 0.1% of the cane area indicative of timely harvesting by the miller.

The surface area for 0-12 months old cane occupies 89% an indication that more of the cane will be available in the next financial year 2023/2024.

16.2. Cane Availability Projections

16.2.1. Cane Projection: December 2022 - June 2023



Cane age available = 13 months and above

Area under cane available = 1,229 Ha

Cane available = $1,229 \text{ Ha} \times 63.13 \text{ Tc/Ha} = 77,592 \text{ tonnes}$

Mill cane requirement at 2500 TCD = 164 days' $\times 2,500 \text{ TCD} = 410,000 \text{ tonnes}$

Cane deficit = $(77,592.26 - 410,000) = (332,408) \text{ tonnes}$

We project a cane supply deficit of 332,408 tonnes by June 2023.

16.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC + IR + 2R)$
19+ Months

Area under cane available = 33,400 Ha

Cane available = $(10,580 \text{ Ha} \times 63.13 \text{ Tc/Ha}) = 667,931 \text{ tonnes}$

Mill requirement at 2,500 TCD = 280 days' $\times 2,500 \text{ TCD} = 700,000 \text{ tonnes}$

Cane deficit = $667,931 - 700,000 = (32,069) \text{ tonnes}$



We project a cane supply deficit of 32,069 tonnes by June 2024.

BSIL will generally experience a severe cane supply deficit during the period under review. We recommend structured enhanced cane planting and yield enhancement initiatives in the zone. This will also increase area under cane to desired levels for a 3,000 TCD factory for a sustainable cane supply.



16.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Poaching by other millers	<ul style="list-style-type: none">• Destruction of termite mounds• Use of insecticides i.e. Confidor• Farmer awareness to be intensified through farmers barazas and field days demonstrations
Poor Crop Management	Extension services to be enhanced through farm visits.
Striga Weed infestation	<ul style="list-style-type: none">• Frequent uprooting of the weed before it flowers and seeds.• Use of farmyard manure and fertilisers
Poor infertile sandy soil	<ul style="list-style-type: none">• Use of filter press mud and inorganic fertilisers.• Land selection criteria to be adopted to identify potential land for cane development.

17.0. CHEMELIL

Sugar Company



17.1. Area Under Cane

17.1.1. Area Under Cane by Counties

Table 74: Area Under Cane by Counties - Chemelil

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
KISUMU	MUHORONI	8,624.0	-	8,624.0	4,078	2.11	47.25
	NYANDO	788.7			3,675	0.21	14.50
	SUB-TOTAL	9,412.7	1,857.4	11,270.1	7,753	1.21	61.75
NANDI	TINDERET	6,981.5		6,981.5	3,634	1.92	38.25
	SUB-TOTAL	6,981.5	-	6,981.5	3,634	1.92	38.25
TOTAL		16,394	1,857	18,252	11,387	1.44	100.00



The area under cane was spread in the Counties of Kisumu (62%) and Nandi (38%).



17.1.2. Area Under Cane by Sector and Yields

Table 75: Area Under Cane by Sector and Yields - Chemelil

	AREA UNDER CANE (HA)		CANE YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	16,394.10	16,327.00	61.58	48.56
NUCLEUS	1,857.40	1,729.00	60.19	51.00
TOTAL	18,252	18,056	61.32	99.56

The area under cane marginally increased by 1% from 18,056 Ha in November 2021 to 18,251.10 Ha reported in November 2022.

The increase in area under cane could be attributed to cane development activities in the Nucleus

estates and outgrowers. The projected productivity of 62.61 Tc/Ha of December 2021 dropped by 2% to 61.32 Tc/Ha in December 2022. The decline in yield could be attributed to poor cane husbandry.



17.1.3. Area Under Cane by Crop Classes

The crop cycles PC:R1:R2:R3+ ratios was 29:39:23:9 against the industry standard of 30:30:30:10 for stable cane supply. The low proportion of plant crops and very high ratoon crop proportion was indicative of low cane development activities in the zone over time.

Table 76: Area Under Cane by Crop Classes - Chemelil

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	1,557.70	635.40	2,193.10	12.02
R1	2,453.05	292.00	2,745.05	15.04
R2	2,563.70	281.50	2,845.20	15.59
R3+	9,819.65	648.50	10,468.15	57.36
TOTAL	16,394	1,857	18,252	100.00

We recommend structured intensive cane planting be initiated and sustained in the zone to normalize the crop cycles proportions for enhanced cane supply to the factory.



17.1.4. Area Under Cane by Varieties

Table 77: Area Under Cane by Varieties - Chemelil

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	312.30	12.70	325.00	1.78
CO 945	16.80	23.60	40.40	0.22
CO 617	15,108.10	428.50	15,536.60	85.13
CO 1148	76.30	0.00	76.30	0.42
D 84 84	89.00	10.00	99.00	0.54
CB 38/22	591.36	1,225.90	1,817.26	9.96
N 14	0.00	9.70	9.70	0.05
KEN 83-737	130.53	44.50	175.03	0.96
CO 331	25.06	0.00	25.06	0.14
EAK 90 97	10.10	27.10	37.20	0.20
KEN 82 808	27.40	0.00	27.40	0.15
KEN 82 472	7.16	0.00	7.16	0.04
KEN 98 533	0.00	2.00	2.00	0.01
KEN 98 530	0.00	13.60	13.60	0.07
Others	0.00	39.40	39.40	0.22
Mixed	0.00	20.40	20.40	0.11
TOTAL	16,394	1,857	18,252	100.00



The dominant variety was CO 617 with a coverage of (85%), followed by CB 38 -22 (10%), CO 421 (2%), KEN 83 737 (1%) and others.

The varieties pool is rich, however, we recommend efforts to increase area under improved varieties.



17.1.5. Area Under Cane by Crop Ages

Table 78: Area Under Cane by Crop Ages - Chemelil

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 – 6	7,392.92	630.10	8,023.02	43.96
7 – 12	6,261.23	589.60	6,850.83	37.54
13 – 18	2,645.64	561.10	3,206.74	17.57
19+	94.31	76.60	170.91	0.94
TOTAL	16,394	1,857	18,252	100.00

The proportion of cane under the age of 0 – 12 months is 81% and will be available during 2023/2024 season.

17.2. Cane Availability Projections

17.2.1. Cane Projection: December 2022 - June 2023



 Cane age available = 13 months and above

 Area under cane available = 3,377.65 Ha

 Cane available = $3,377.65 \text{ Ha} \times 61.32 \text{ Tc/Ha} = 207,117 \text{ tonnes.}$

 Mill cane requirement at 3,000 TCD = $164 \text{ days} \times 2,500 \text{ TCD} = 410,000 \text{ tonnes}$

 Cane deficit = $207,117 - 410,000 = (202,883) \text{ tonnes}$

We project a cane supply deficit of 202,883 tonnes by June 2023.

17.2.2. Cane Projection: July 2023 - December 2024

 Cane age available = $(0 - 12) + (PC + IR + 2R)$
19+ Months

 Area under cane available = 15,000 Ha

 Cane available = $(15,000 \text{ Ha} \times 61.32 \text{ Tc/Ha}) = 919,828 \text{ tonnes}$

 Mill requirement at 3,000 TCD = $280 \text{ days} \times 2,500 \text{ TCD} = 700,000 \text{ tonnes}$

 Cane deficit = $(919,828 - 700,000) \text{ Tc} = 219,828 \text{ tonnes}$



We project a supply surplus of 219,828 tonnes by June 2024.

We recommend timely strategies be put in place to manage the projected cane supply glut to avert challenges associated with cane oversupply; and for the miller to fully utilize the mill rated capacity of 3000 TCD to crush more cane.



17.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Change of weather patterns	Irrigation
Competition from other millers	Zoning
Dominance of old cane varieties	Sensitising farmers on planting early maturing varieties with high sucrose content
Obsolete Factory.	Rehabilitation or modernization of the factory

WEST KENYA SUGAR COMPANY LIMITED

18.0. NAITIRI

UNIT



18.1.1. Area Under Cane by Counties

Table 79: Area Under Cane by Counties - Naitiri

NAME OF THE COUNTY	NAME OF THE SUB-COUNTY	OUT-GROWERS (HA)	NU-CLEUS ESTATE (HA)	TOTAL (HA)	NO. OF FARMERS	AVERAGE CANE PLOT SIZE (HA)-OG	% COVER-AGE
BUNGOMA	TONGAREN	6,687.0	0.0	6,687.0	11,861	0.56	33.21
	WEBUYE EAST	6,101.0			9,993	0.61	30.30
	KIMILILI	1,028.0			2,900	0.35	5.11
	SUB-TOTAL	13,816.0	0.0	13,816.0	24754	0.56	68.62
TRANS-NZOIA	KIMININI	2,056.0		2,056.0	815	2.52	10.21
	ENDEBESS	1,028.0		1,028.0	240	4.28	5.11
	KWANZA	2,823.0		2,823.0	446	6.33	14.02
	SABOTI	411.0		411.0	214	1.92	2.04
	SUB-TOTAL	6,318.0	0.0	6,318.0	1,715	3.68	31.38
TOTAL		20,134	0	20,134	26,469	0.76	100.00



The raw material catchment for West Kenya - Naitiri Unit was in the Counties of Bungoma (68.62%) and Trans-Nzoia (31.38%).

18.1.2. Area Under Cane by Sector and Yields

Table 80: Area Under Cane by Sector and Yields - Naitiri

	AREA UNDER CANE (HA)		CAN YIELD (TC/HA)	
	Nov-22	Nov-21	Nov-22	Nov-21
OUTGROWERS	20,134.00	N/A	68.69	N/A
NUCLEUS	N/A	N/A	N/A	N/A
TOTAL	20,134	N/A	68.69	N/A

The area under cane is 20,134 Ha with cane yield projected at 68.69 Tc/Ha.



18.1.3. Area Under Cane by Crop Classes

Table 81: Area Under Cane by Crop Classes - Naitiri

The crop cycles PC: R1:R2: R3+ ratio was 46:53:01:00 compared to the industry standard of 30:30:30:10 for stable cane supply.

CROP CYCLE	OUTGROWER (HA)	NUCLEUS (HA)	TOTAL (HA)	% COVERAGE
PC	9,283.79	0.00	9,283.79	46.11
R1	10,692.86	0.00	10,692.86	53.11
R2	116.72	0.00	116.72	0.58
R3+	40.62	0.00	40.62	0.20
TOTAL	20,134	0.00	20,134	100



Table 82: Area Under Cane by Varieties - Naitiri

VARIETY	OUT-GROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVER-AGE
CO 421	13,952.00	0.0	13,952.00	69.30
CO 945	3,987.00	0.0	3,987.00	19.80
N 14	2,195.00	0.0	2,195.00	10.90
TOTAL	20,134	0.0	20,134	100



CO 421 was the dominant variety occupying 69%, CO 945 (20%), and N 14 (11%). There is a need to introduce improved varieties to the zone.

18.1.5. Area Under Cane by Crop Ages

Table 68: Area Under Cane by Crop Ages - Naitiri

AGE (MONTHS)	OUTGROWERS (HA)	NUCLEUS ESTATE (HA)	TOTAL (HA)	% COVERAGE
0 – 6	6,142.77	0.00	6,142.77	30.51
7 – 12	6,555.09	0.00	6,555.09	32.56
13 – 18	3,318.30	0.00	3,318.30	16.48
19+	4117.84	0.00	4117.84	20.45
TOTAL	20,134	0.00	20,134	100

The proportion of cane that was 19+ months old was 20.45% indicative of over mature cane in the zone at the time of the survey.

18.2.1. Cane Projection: December 2022 - June 2023



Cane age available = 13 months and above

Area under cane available = 1,229 Ha

Cane available = $7,436 \text{ Ha} \times 68.69 \text{ TCH} = 510,751 \text{ tonnes.}$

Mill cane requirement at 3000 TCD = 187 days' $\times 3,000 \text{ TCD} = 561,000 \text{ tonnes}$

Cane supply deficit = $(510,751 - 561,000) = (50,249) \text{ Tonnes}$

We project a cane supply deficit of 50,249 tonnes by June 2023.

18.2.2. Cane Projection: July 2023 - December 2024

Cane age available = $(0 - 12) + (PC + IR + 2R)$
19+ Months

Area under cane available = 116,810 Ha

Cane available = $(116,810 \text{ Ha} \times 68.69 \text{ Tc/Ha}) = 1,154,590$

Mill requirement at 3,000 TCD = 320 days
 $\times 3,000 \text{ TCD} = 960,000 \text{ tonnes}$

Cane surplus = $1,154,590 - 960,000 = 194,590 \text{ tonnes}$



We project a supply surplus of 194,590 tonnes by June 2024. We therefore, recommend cane sharing agreements with neighbouring mills.

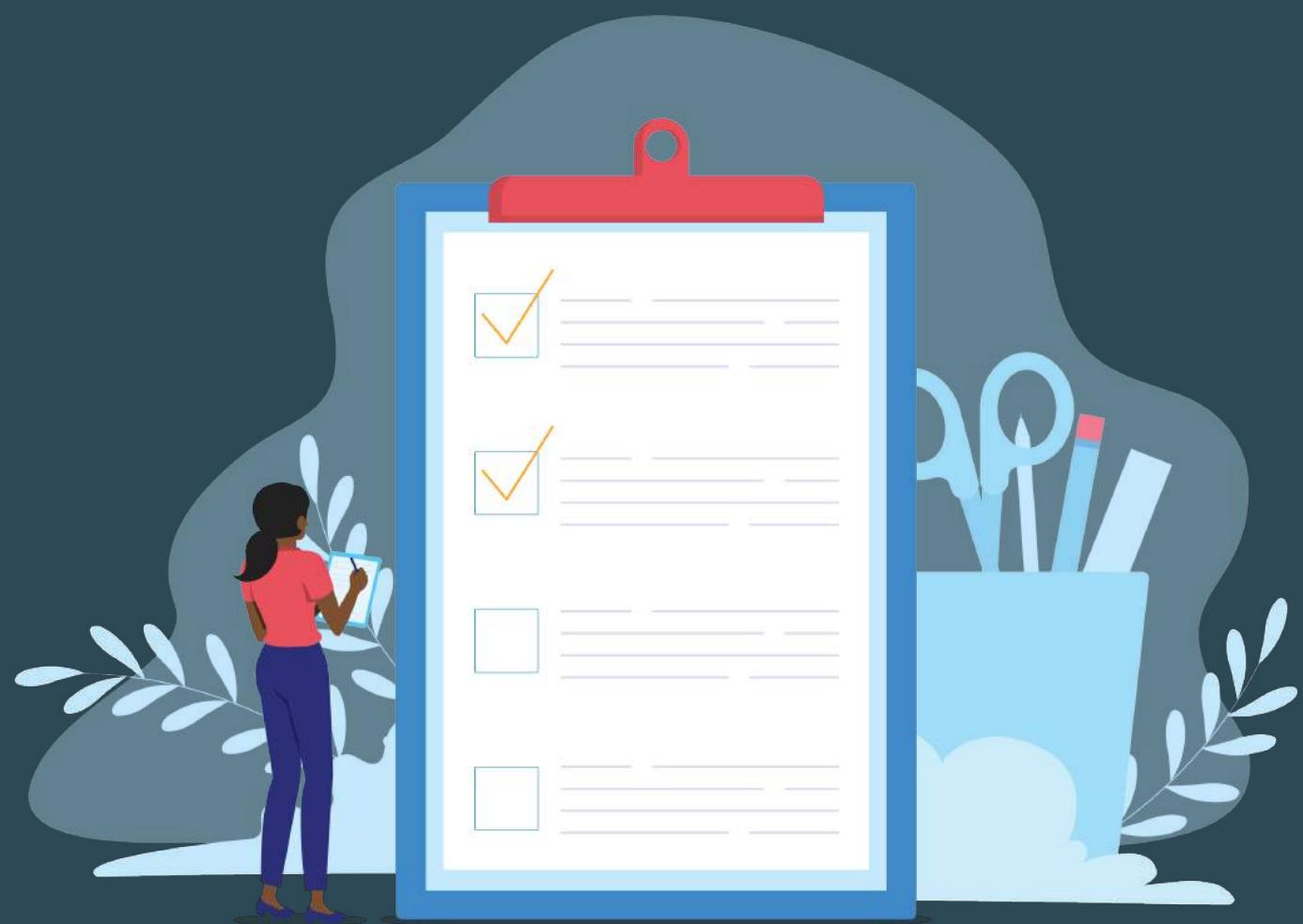


18.3. Cane Production Constraints and Possible Mitigations



CONSTRAINT	MITIGATION
Cane poaching	Avail more cane transport units and increase harvesting rate

APPENDICES

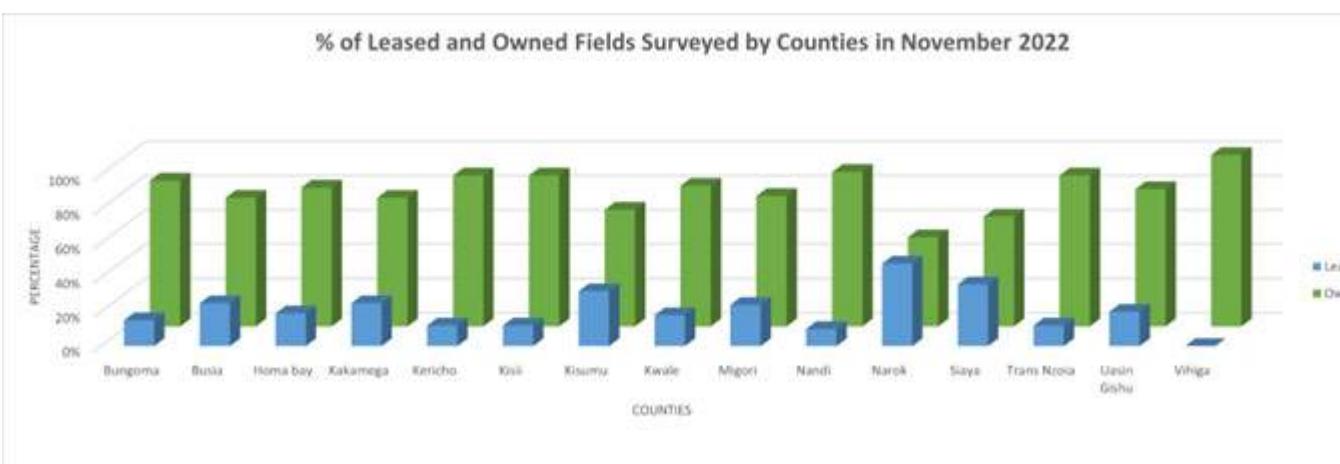


Appendix I. Survey Finding - Age Group Distribution by Sugar Company

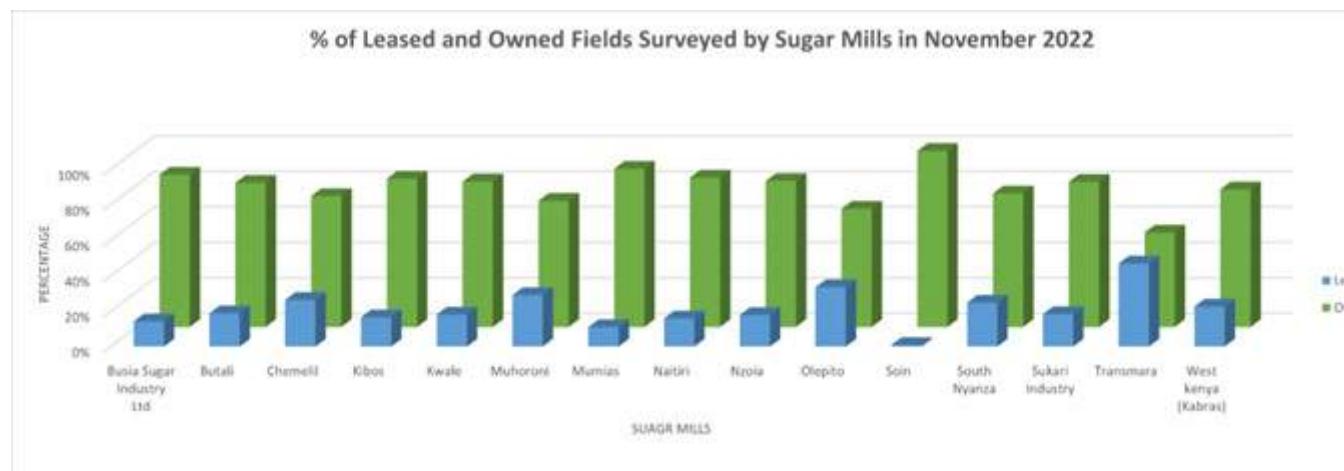
Survey Findings: Age Group Distribution by Sugar Company

Sugar Company	Age Group						Grand Total
	20-30	31-40	41-50	51-60	Above 60		
Busia	8%	23%	27%	31%	11%		100%
Butali	3%	21%	34%	27%	15%		100%
Chemelil	1%	16%	36%	25%	22%		100%
Kibos	2%	23%	37%	28%	11%		100%
Kwale	0%	3%	16%	43%	38%		100%
Miwani	0%	0%	0%	0%	0%		0%
Muhoroni	2%	19%	32%	29%	18%		100%
Mumias	0%	0%	0%	0%	0%		0%
Nzoia	1%	19%	32%	25%	22%		100%
Olepito	1%	12%	50%	26%	11%		100%

Appendix II. Survey Finding - % of Leased & Owned Fields Surveyed County wise



Appendix III. Survey Finding - % of Leased and Owned Fields Surveyed by Sugar Mills



Appendix IV. AFA - Sugar Directorate Staff

Staff Member	
1.	RICHARD MAGERO
2.	BEATRICE ODIWA
3.	PATRICIA NJERU
4.	SHADRACK KIPRONO
5.	STANLEY KOECH
6.	ELISHA MTOGO
7.	JOHN KYULE
8.	ALVIN MWANGI
9.	DAVID NTORIBI
10.	BRIAN ODHIAMBO
11.	LYTHA MAYANJA



Appendix V. Enumerators and Mill Staff



KIBOS

ENUMERATORS	MILL STAFF
DANCAN OMONDI OPIYO	JORAM NYABUTE
HILLARY KERONEY	SIMION BIWOTT
JOHN KIPKEMBOI LAGAT	ROBERT ROTICH
RICHARD WALTER OBUNGU	JACOB OTIENDE
SYLVIA ATIENO OLOERO	FREDRICK OPATA

CHEMELIL

ENUMERATORS	MILL STAFF
ELIZABETH AOKO ONJIRA	PATRICK ONYANGO
GEORGE OCHIENG ODENY	FREDRICK TUWEI
FREDRICK OKEYO OKEYO	COLLINS OMBURA
PHILIP KIMELI TARUS	SASYLINE JEPKEMEI
KIPRONO ELLY	RUTH JEPKOECH
KENNEDY KIPRONO LIMO	SILAS KOGO
BELINDA AKOTH MAGERO	ANN AKOMBO
ELVIS OLUOCH AGUTU	DAVID OKUMU ONYANGO
FREDRICK AJUMA AUMA	KENNEDY OCHIENG JUMA
TIONY C. CLEOPHAS	PHILEMON TOO
	JOYCE WANJA NAIVASHA
	EDWARD PETER OWALO
	COBERT AGENG
	EMMANUEL GUARD
	DAN AYIEKO
	NELSON OKUKU
	GEORGE OWITI

**MUHORONI**

ENUMERATORS	MILL STAFF
RAILA FREDRICK	SYLVESTER OKETCH
NGETICH CHARLES	COLLINS KIPLANGAT
OMONDI EDDY STEVE	FRANCIS TOO
GERALD OGINGA	EMMANUEL OCHIENG
GEORGE MBUDI	JOSEPH MATINGWONY
NAUM OUMA	DANIEL OCHIENG
TEDDY COLLINS	COLLINS KIPLANGAT
FREDRICK OUMA	JOHN ODARI
WELDON LANGAT	RICHARD KITUR

MIWANI

ENUMERATORS	MILL STAFF
WHITTER O. ONYANGO	FRED BOGE (COORDINATOR)
AMOS OLIECH	ROSEMARY ANGUGO
	DICKSON OCHIENG

SOIN

ENUMERATORS	MILL STAFF
ELIUD KIPSANG MUTAI	DANIEL K. RUGUT
BII K. WELDON	MESHAK K. KORIR

**SONYSUGAR**

ENUMERATORS	MILL STAFF
OBIERO BYRON	KESSIAH AKINYI
KEVIN OKWIRI	EBEL ODHIAMBO
LAMECK OMONDI	GEOPHREY ATINGA
OTIENO REAGAN	BERNARD ODIRA
GRACE WANJA	JOSEPH KISULU
AKODEH BOAZ	DANIEL OUKO
BONIFACE ODHIAMBO	

SUKARI

ENUMERATORS	MILL STAFF
ANNA ACHIENG	DESAI DAVID
FREDRICK OCHIENG	QUIRINIUS ODUOGI
RONALD ODHIAMBO	FRED OUMA
EMMACULATE AKOTH	JOHN KOKO
OBARA EZEKIEL	OWINO GODFREY
TOM OTIENO	JULIUS OUMA
MARY ADHIAMBO	LUCAS OTIENO
SAMWEL OUMA	
MAURINE ACHIENG	
CLINTON OTIENO	



TRANSMARA

ENUMERATORS	MILL STAFF
BONFACE OYORI	CALEB NAIRENKE
ALFRED OCHICH	MOSES SUSWA
DANIEL LESHAO	EDI OKOTH
TORKOSH LEPITA	DACHE LEVINA
TEDDY NGASE	STELLAH CHEBET
CAROLINE NAIRENKE	JOSHUA OKELLO
JOHNSTONE LEMISO	MELLY MATHIGAI
MEKURO LETUYA	CHARLES OYARO
EZEKIEL ATEMBA	OLUKWO MAURICE
	STEPHEN NG'ANG'A

BUSIA

ENUMERATORS	MILL STAFF
FARID JUMA	VINCENT MAKELLO
CHARLES OTIENO	SAMUEL KATAM
MENTRINE AUMAH	SIWIA METRINE NYONGESA
LORNA OLIVE OKACHA	WILLICE MAKOKHA
JOB SISUMA ANDATI	VALENTYNE OTIENO
MERCYLINE ATIENO	SETH ATOTI ISAAC
SAIDA MUNGAYI OMOTO	KALIVO O. SHINOSI



OLEPITO

ENUMERATORS	MILL STAFF
GRACE EDITH EKIRING	IGNATIUS KEMBU OTIELI
SHARON ISJI EKISE	FREDRICK OLOLTEL
ISAAC WEKESA OUMA	DAVID ODHIAMBO ODERO
SIKUKU WALUMOLI PETER	CONRAD JUMA
CELESTINE NAFULA KILALI	AMBROSE BONSTONE BARASA
TADEUS ICHIKWA OGWANA	GEOFFREY EKEYA

NZOIA

ENUMERATORS	MILL STAFF
VELLA NASIKE MWASAME	TOBIAS B. YAYA
METRINE N. MUNYOLE	MAXWEL MULIRO
SAUL WANJALA	MARTIN WANJALA
DENNIS WEKESA WANYONYI	CEPHAS WABWILE
JOHN WABUKE	CHARLES SIMIYU
PAUL WANJALA WEKESA	SAMUEL WEPUKHULU
ABSOLOM WAMBULWA	PETER WAFULA MAKHANU
EZEKIEL W. MARUTI	TITUS K. KUNDU
ELIZABETH A. OCHOLIA	JANET JUMA
	BRENDA N. WAFULA

KWALE

ENUMERATORS	MILL STAFF
MOHAMED MWAZITO	WYCLIFFE KOMBA
RAMLA SALIM MWANAKA	EDWIN KOECH
MWANAMISI BAKARI	VICTOR OMALA
BELINDER AKINYI OTIENO	MARK MUKONYI

**BUTALI**

ENUMERATORS	MILL STAFF
TIMOTHY OKINDA NDUKU	ENOCH TIISA
DEBORAH N WALUMOLI	JOHN RUPIA
SAMMY SIMIYU CHIKAMAI	BONFACE MULUNDA
KEFA W. WANANGWE	MOSES WASULA
ELECTINE N MAKOKHA	TUKERO NICHOLAS
PATRICK WANYAMA MUKONGOLO	KOECH ELVIS
EDWIN OLUNGA	ROTICH PETER
KELVIN KIPROTICH	MICHAEL NAUMUYU
ANN K. CHIKAMAI	FRANCIS NYINZA
ADELINE N. NYONGESA	NARAYANAN. K.
KIRWA HILLARY KIPCHUMBA	THILAR N.
JACQUELINE KARONEY	EGABA ALLAN
	CONSTANT KEYA

MUMIAS

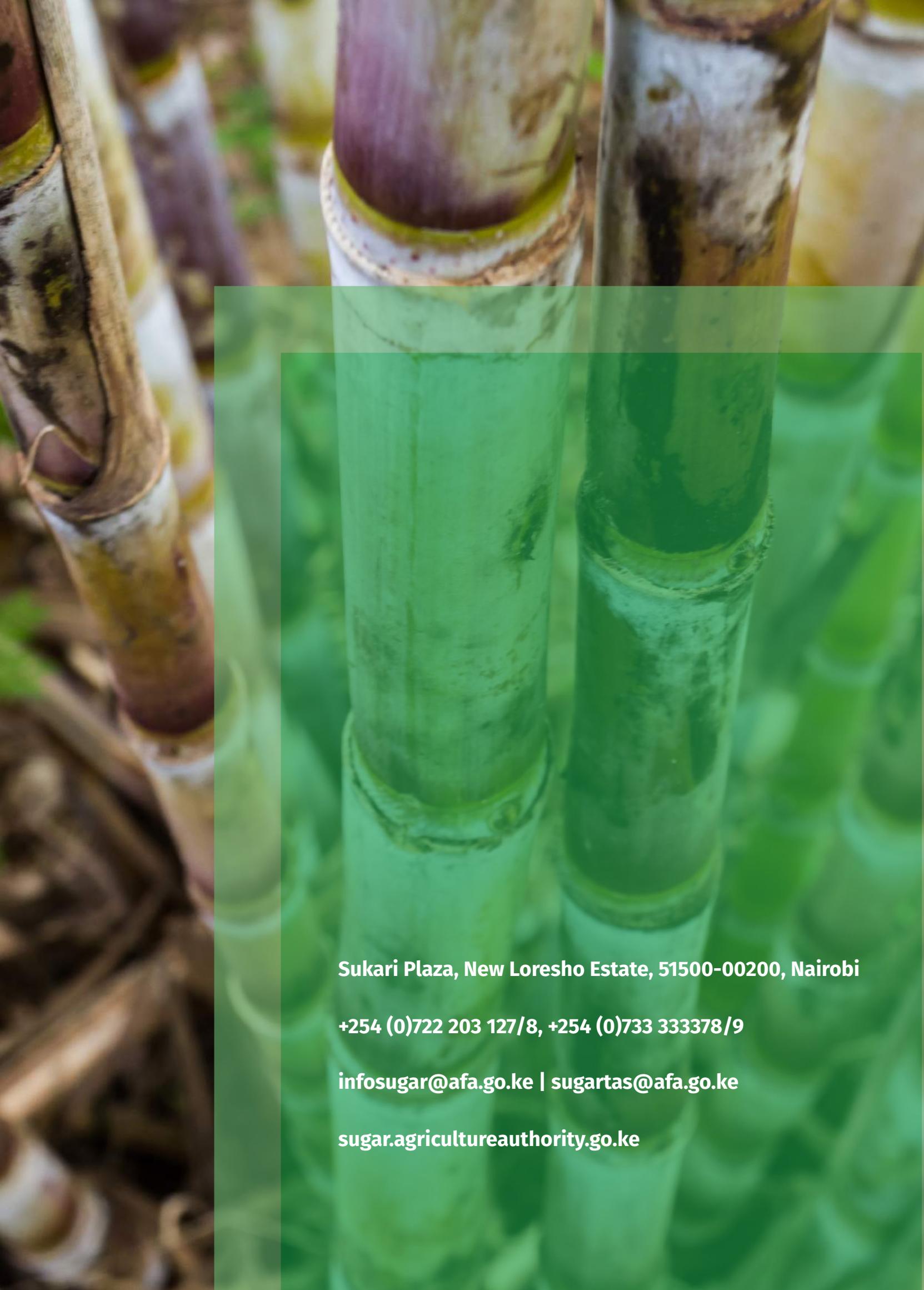
ENUMERATORS	MILL STAFF
ASMAN MUSA OKWATCH	GERALD KIPKEMBOI
GIDEON DAUGLAS OKUMU	JARED BUNGE
VICTOR OTIENO NYONGESA	JOEL NGOME

**WEST KENYA**

ENUMERATORS	MILL STAFF
WAWIRE CASSIM	EDMOND AMBINDI
VERNA WAGUNDA	IMELDA AYELA
AKHONYA CHARITY	FREDRICK BARASA
WILFRED MWAKA	EZRA WAKHICHU
TITUS MUNANGA	RASHID WANJALA
MUKHWANA PRISCAH	MARY MUHUYI
VERONICAH MULAMA	METRINE BALINYALA
JACOB OMUMARAMA	LEVY CHINENJE
AURELLIA WAKUKHA	PETER MULAMBULA
METRINE WERE	TERESIA MULUPI
ASHIUNDU COLLINS	DARBY KASYOKA
SIFUNA IYAYA	SAMUEL WANJALA
HELDAH KHADIMBA	ALEX SHAMALA
JULIUS ANYERA	LEILA KUNZUSHI
LEAH KHISA	ERICK BARASA
MESHACK JUMA	CONSTANT KEYA
CAROLYNE M JUMA	WELINGTON WANGIA
CLEMENT M MURNO	MOURICE OCHWAYE
SHAGWILA K EBBY	JOSEPHAT BIWOT
ERICK SHINYIKHA	JOSHUA KURGET
KIPYEGO JAPHETH	ABRAHAM KIRWA
EMMY JEPROTICH	ZIPPORAH KHARUMI
DANIEL KIPKOECH	EVERLYNE EYEZO
GERALD JUMA	ISAAC KIPROTICH

**TRANSMARA**

ENUMERATORS	MILL STAFF
PHANUEL WEKESA MASINDE	NELSON OKUMU
MOSES SIMIYU KWANUSU	BENJAMIN CHEPTEI
AYUB WANJALA MUNYASIA	LEVY KUNDU
VIOLET NAKHANU MBOCHE	BRENDA OTIENO
JANE NAMARUME LUMBASI	HEZRON SHINOSI
WANYONYI EMMANUEL NATO	ANTHONY NYONGESA
SHARON DINANA WIMONI	AMOS WAFULA
KHISA W. ABEL	DANCUN MALOBA
WANJALA NAFUNA BRENDAH	WASWA MAKOKHA
SAMSON MULONGO MASIKA	BASIL WANYAMA



Sukari Plaza, New Loresho Estate, 51500-00200, Nairobi

+254 (0)722 203 127/8, +254 (0)733 333378/9

infosugar@afa.go.ke | sugartas@afa.go.ke

sugar.agricultureauthority.go.ke