



GOVERNMENT OF UGANDA

**PROFILING AND INDUSTRY ANALYSIS
OF FORTIFIED AND FORTIFIABLE
FOODS IN UGANDA**



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Acronyms and Abbreviations

BASF	Badische Anilin und Soda Fabrik
EAS	East African Standard
ECSA	East Central and Southern Africa
MDAs	Ministries, Departments, and Agencies
MOH	Ministry of Health
MT	Metric Tonnes
NDA	National Drug Authority
NWGFF	National Working Group on Food Fortification
USAID	U.S. Agency for International Development
USCTA	Uganda Sugar Cane Technologists' Association

Definition of Terms

Capacity: The availability of resources, and the efficiency and effectiveness with which societies deploy these resources, to sustainably identify and pursue their development goals. In this report, we refer to the capacity of the food processors to fortify food products to meet national regulations and standards.

Capacity needs: The availability of knowledge, skills, strengths, weaknesses, opportunities, threats, assets, and other elements required for the stakeholder to achieve prespecified objectives. In this case, it refers to the knowledge, skills, strengths, and technology among food processors to meet food fortification standards and regulations.

Capacity needs assessment: A process of identifying sectoral stakeholders' perceptions on various capacity areas that impact the work they do. In this report, the stakeholders are food processors.

Food fortification: The practice of deliberately increasing the content of one or more essential micronutrients in foods to improve its nutrition profile and provide a public health benefit with minimal risk to individual health.

Food vehicle: The foodstuff to which micronutrients are added. These include maize flour, wheat flour, salt, condiments, and edible oils and fats.

Fortificants/premix: The chemical sources of micronutrients, such as sodium iron ethylenediaminetetraacetate (NaFeEDTA) or ferrous fumarate (compounds of mineral iron), retinyl palmitate (a compound of vitamin A), and folic acid (a compound of folate) that are added to a food product during the fortification process.

Fortifiable food: Food that could be fortified according to national legislation and standards.

Fortified food: Food that is definitively fortified according to qualitative or quantitative tests, or a product packaging review.

Market share: The portion of a market controlled by a particular sector, company, or product. In this case, it is expressed as the proportion of the food processing industry's annual production capacity that is shared by the total annual production capacities of the individual industries.

Production capacity: The maximum possible output of a product that a company can produce, measured in units of output per period.

Acknowledgments

The Government of Uganda, through the Ministry of Trade, Industry, and Cooperatives and USAID Advancing Nutrition, would like to thank the food industries and the National Working Group on Food Fortification for their active participation during the profiling and industry analysis of fortified and fortifiable foods exercise.

Cover photo credit: USAID Advancing Nutrition Uganda. A quality control at Mandela Millers Limited add fortificant mix/premix to a dossier for wheat flour fortification.

1.0 Introduction

1.1 Overview of the Food Fortification Program in Uganda

The Ministry of Health (MOH) adopted industrial food fortification as one of its high-impact and cost-effective interventions to contribute to the reduction of micronutrient deficiencies. Food fortification programming in Uganda is supported by the Food and Drugs Act, 1959; the Food and Drugs (Control of Quality) (Iodated Salt) Regulations, 1997; the Food and Drugs (Food Fortification) Regulations, 2005; and the Food and Drugs (Food Fortification) (Amendment) Regulations, 2011, which applies to industrial mills with a daily production capacity of 10 metric tonnes (MTs) or more for edible cooking oils and fats, 20 MTs or more for maize flour, and all mills producing wheat flour. The regulation also requires the fortification of all imported maize flour, wheat flour, and edible oils and fats.¹ Any industrial food processor who meets these requirements must fortify the food products as per the national guidelines. We have some food processors who voluntarily fortify their food products to gain a market advantage or a similar business-related reason. Even though they voluntarily fortify their products, they must adhere to the national standards for that food vehicle. Additional operational tools and guidelines for the ministries, departments, and agencies (MDAs) include the national food fortification strategy, national standards, and guidelines.

The Government of Uganda adopted a multi-sectoral approach in implementing the food fortification program and has made considerable progress in the enforcement and compliance to the regulation through a public-private partnership. The MOH, as the custodian of the food fortification regulation, has led the coordination of food fortification efforts through the National Working Group on Food Fortification (NWGFF), which includes stakeholders from government MDAs, the private sector, civil society, academia, donors, and partners.

1.2 Purpose and Objectives of the Profiling Exercise

1.2.1 Purpose of the Exercise

With the progress made in the implementation of the food fortification program in Uganda, it was recognized that a comprehensive profile and industry analysis of fortified and fortifiable foods was needed to understand the market for these foods and guide national strategic investments on large-scale food fortification. U.S. Agency for International Development (USAID) Advancing Nutrition, in collaboration with the Ministry of Trade, Industry and Cooperatives and the NWGFF, conducted this profiling exercise.

1.2.2 Objectives of the Profiling Exercise

The objective of the profiling exercise was:

¹ MOH 2011. The Food and Drugs (Food Fortification) (Amendment) Regulations, 2011
<http://ugandanlawyer.com/wp-content/uploads/2019/03/Food-and-drugs-food-fortification-regulations-2011.pdf>

1. To conduct the industry and market analysis of fortified foods (maize flour, salt, wheat flour, and edible oils and fats) in the following areas:
 - regional distribution of fortifying industries across the country
 - installed and production capacities of fortifying food industries and fortified brands
 - market share of fortified foods.
2. To assess the capacity of sugar and bouillon cubes as potential food vehicles for fortification
3. To describe the premix brands and suppliers
4. To describe the current status of packaging and labeling of fortified foods.

1.3 Approach Used in the Profiling Exercise

We obtained information for the profiling exercise through interviews and engagement with the fortifying food industries and relevant NWGFF institutions. We conducted 33 interviews with fortifying industries, including 9 maize flour, 14 wheat flour, 2 salt, and 8 edible and fats processors. We used a semi-structured form to ask the stakeholders about: (a) installed and production capacities; (b) retail sales and marketing practices; and (c) packaging and labeling processes.

We also reviewed documented reports from Capacity Needs Assessment of Food Processors of Maize and Wheat Flours, Salt, Edible Oils and Fats (USAID Advancing Nutrition 2022) and Report on Regional Inspection of Premix Storage Facilities (National Drug Authority 2022), which provided additional information on the location, regional and national distribution patterns, installed and production capacities, and premix brands and suppliers. We used both these sources of information to arrive at profiles for each food vehicle, as described below. In addition, we reviewed technical reports from other partners, including Fortification of Vegetable Oil and Sugar with Vitamin A in Uganda (Fielder et al. 2009) and Comparing the Feasibility, Coverage, Costs and Cost Effectiveness of Fortifying Vegetable Oil and Sugar (Fielder and Afidra 2010) to specifically gather data in assessing the capacity of sugar as a potential food fortification vehicle. Furthermore, the Food Assessment Coverage Assessment survey tool (2015) was reviewed to gather information on the household coverage of bouillon cubes in Uganda.

2.0 Findings from the Profiling Exercise

The findings are presented and discussed by objective across the following thematic areas:

- regional distribution of fortifying industries across the country
- installed and production capacities of fortifying food industries and fortified brands
- market share of fortified foods
- the capacity of sugar and bouillon cubes as potential food vehicles for fortification
- premix brands and suppliers
- packaging and labeling of fortified foods.

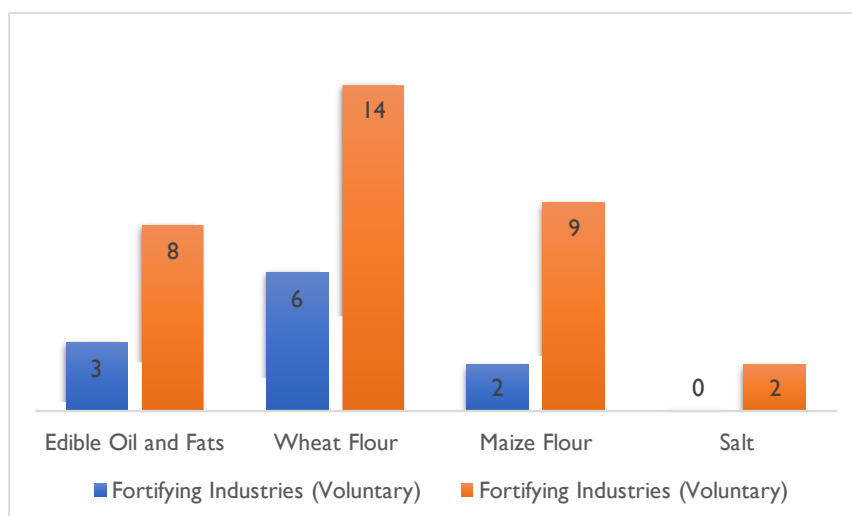
2.1 Distribution of the Fortifying Industries by Food Vehicle

This section provides information on: (a) the number of fortifying industries from voluntary fortification to mandatory food fortification; and (b) the number of fortifying industries across the four regions (Northern, Western, Eastern and Central) in Uganda, by food vehicle (edible oils and fats, wheat flour, maize flour, and edible salt), as seen in Figure 1.

2.1.1 Fortifying Industries by Food Vehicle—from Voluntary to Mandatory Fortification

Food fortification programming evolved from voluntary to mandatory from 2005 to 2011, with 11 local industries (6 wheat flour, 2 maize flour, 3 edible oils and fats, and 0 salt) voluntarily participating in food fortification. Mandatory food fortification began in 2011 after the amendment of the food fortification regulation of 2005, and currently a total of 33 industries (14 wheat flour, 8 edible oils and fats, 9 maize flour) participate in mandatory fortification. Although fortified/iodized salt is largely imported, two local salt producers are now fortifying under the salt iodization mandatory regulation of 1997. See details in Figure 1.

Figure 1. Fortifying Industries by Food Vehicle—from Voluntary to Mandatory Fortification

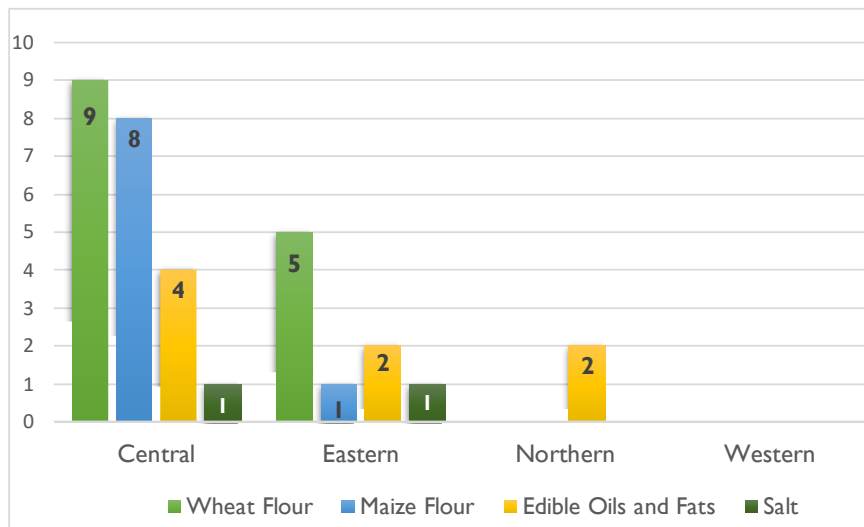


Source: USAID Advancing Nutrition Capacity Needs Assessment Report 2022

2.1.2 Regional Distribution of Fortifying Food Industries by Food Vehicle

As reflected in Figure 2, 67 percent (22/33) of the fortifying industries are found in the Central region and 27 percent (9/33) in the Eastern region, and both regions had at least 1 fortifying food industry across the 4 food vehicles, dominated by wheat flour processors (14), and edible oils and fats processors (8). Most of the fortifying maize industries (8) were located in the Central region, while the two local salt processors were located in Central and Eastern regions. However, the Western region had no industries fortifying, though a few maize industries were installing dossiers to support fortification at the time of the exercise.

Figure 2. Regional Distribution of Fortifying Food Industries by Food Vehicle



2.2. Installed and Production Capacities of Fortifying Food Industries Across the Fortified Brands

2.2.1 Actual Production Capacity of Fortifying Food Industries and Fortified Brands

The actual production capacity of edible oils and fats industries contributes the largest volume of fortified foods, with an estimated 635,351 MT annually from 31 fortified brands in Uganda. Wheat flour industries have an estimated annual production capacity of 614,712 MT from 51 fortified brands. By contrast, the estimated annual production volume of fortified maize flour is relatively low at 41,292 MT from 9 fortified brands. This is attributed to the fact that the maize industry is dominated by 63.1 percent micro and small-scale millers (SPRING 2017), whose batch processing technologies are characterized by low production capacities. The aggregated annual salt production capacity from the 2 local salt processors is estimated at 11,666 MTs from 4 fortified brands, as seen in Table 1.

2.2.2 Variations in Installed and Actual Production in MT (per year)

As shown in Table 1, there are notable variations between the installed and actual production capacities of the industries as a result of capacity gaps affecting optimal production for all food vehicles, with percentage variations of 33.1 percent for maize flour, 32.2 percent for wheat flour, and 24.5 percent for edible oils and fats. The main challenges include: (a) the high cost of production as a result

of limited access to and the high cost of fortificants/premix; (b) high utility costs, particularly for electricity; (c) limited technical capacity, including skilled personnel for internal product testing; (d) export of maize grain to get more income; (e) raw material scarcity due to seasonality; and (f) infrastructure.

Table 1. Installed and Production Capacity of Fortifying Industries across the Fortified Brands

Food vehicle	Aggregated installed capacity (MT)	Average daily production capacity (MT)	Aggregated annual capacity (MT)	Fortified brands
Edible oils and fats	382.5	288.8	635,351	31
Maize flour	64.8	43.3	41,292	9
Wheat flour	264.4	179.2	614,712	51
Salt	310	80	11,660	4

Source: USAID Advancing Nutrition Capacity Needs Assessment Report 2022

2.3 Market Analysis of Fortified Foods

Documenting production capacities and market share informs the scale of operation of fortifying industries to guide national strategic investments for large-scale food fortification and provides insight into the economic feasibility of the fortification program. The exercise established the actual and potential market share of fortified foods in Uganda and estimated the potential contribution of fortified foods to the needs of the population.

2.3.1 Market Analysis for Fortified Wheat Flour

About 77 percent of the market share is held by the largest 6 fortifying wheat industries, with 23 percent from additional 6 industries. Two industries had production capacity lower than the 12 industries; hence, their market share contribution is not significant (0%). From these results, it is evident that all the wheat flour processors in the country meet the classification for large-scale food fortification of 150 MT per day as recommended by the global guidelines for large-scale food fortification (USAID 2022).

The wheat flour industry is characterized by large-scale central processing facilities that have embraced modern technologies, hired skilled personnel, and established internal quality control and assurance, contributing to consistency in production of fortified wheat flour that meets national standards.

Assuming that each individual consumed about 50 grams per day of fortified wheat flour, the existing wheat flour mills would reach approximately 48,352,000 Ugandans, meeting 106 percent of the national demands and individual micronutrient requirements of the Ugandan population of 45.5 million (UBOS 2023). Table 2 provides details on the production capacities of industries and the actual and potential market share of fortified wheat flour.

Table 2. Production Capacities of Industries and Market Share of Fortified Wheat Flour

Company	Number of production days	Actual daily production	Installed daily production (MT)	Actual annual production (MT)	Estimated annual capacity (MT)	Actual market share (%)	Potential market share at capacity (%)
A	288	600	1,100	172,800	316,800	28	36
B	336	240	300	80,640	100,800	13	12
C	288	220	220	63,360	63,360	10	7
D	300	192	240	57,600	72,000	9	8
E	288	192	192	55,296	55,296	9	6
F	300	150	200	45,000	60,000	7	7
G	288	120	140	34,560	40,320	6	5
H	288	100	120	28,800	34,560	5	4
I	288	100	120	28,800	34,560	5	4
J	210	80	80	16,800	16,800	3	2
K	240	50	100	12,000	24,000	2	3
L	96	116	540	11,136	51,840	2	6
Total				606,792	870,336	99	100
Number of covered persons if each consumed 50 grams/day of fortified wheat flour				33,710,667	48,352,000	Existing mills would satisfy 106% of the national demand for fortified wheat flour	

Source: USAID Advancing Nutrition Capacity Needs Assessment Report 2022

2.3.2 Market Analysis of Fortified Edible Oils and Fats

Fortification of edible oils and fats has been successfully implemented in Uganda over the years, largely premised on a strong public-private partnership. The Uganda National Panel Survey national data of 2018/19 on adequacy of fortification in oil and fat samples collected at households showed that 82.6 percent of the edible oil samples showed presence of vitamin A at the household level, demonstrating the potential of Uganda's food fortification program to supply the population's vitamin A nutrient requirements. (UBOS, 2020). Comparable to the wheat flour processing sector, industries producing edible oils and fats are predominantly large-scale, centrally process their products, and employ robust supply chains.

This study established that 70 percent of the market share of fortified edible oils and fats is held by the largest two edible oils and fats industries while 30 percent of the market share is by 5 industries. On assumption that each individual consumes 20 grams per day of fortified edible oil/fat, the existing edible oils and fats industries would reach approximately 124.6 million Ugandans, 274 percent of the Ugandan population of 45.5 million (UBOS 2023). The Ugandan market has adequate production and coverage from 54.4 percent (GAIN, 2017) of local fortified edible oil and fats processors, with the surplus exported to the regional markets, including South Sudan, Tanzania, and Rwanda. Details on the profile of edible oils and fats industries are presented in Table 3.

Table 3. Production Capacities of Industries and Market Share of Fortified Edible Oils and Fats

Company	~ number of production days	Actual daily production	Installed daily production (MT)	Actual Annual production (MT)	Estimated annual capacity (MT)	Actual market share (%)	Potential market share at capacity (%)
A	288	1000	1500	288,000	432,000	44	50
B	288	600	600	172,800	172,800	26	20
C	300	150	240	45,000	72,000	7	8
D	300	150	240	45,000	72,000	7	8
E	300	200	250	60,000	75,000	9	9
F	288	100	100	28,800	28,800	4	3
G	180	100	100	18,000	18,000	3	2
H	150	30	30	1,500	1,500	0	0
Total				659,100	872,100	100	100
Number of covered persons if each consumed 20 grams/day of fortified oil				94,157,143	124,585,714	Companies A–G are large-scale and satisfy 274% of the national demand for fortified oil	

Source: USAID Advancing Nutrition Capacity Needs Assessment Report 2022

2.3.3 Raw materials for oil and fat processing in Uganda

The edible oil and fats industry in Uganda depends mainly on imported crude or degummed palm oil as raw materials for oil processing. Other sources/raw materials for oil include cotton seed, sunflower, and soybean. The success of fortification in the oil and fat industry in Uganda could be attributed to the oxidative stability of palm oil because its fatty acid composition enables its use in high temperatures and ensures a prolonged shelf life of products made of palm oil, thus making it popular for fortification..

Sunflower and cotton seed contain unsaturated fatty acids that could easily degrade vitamin A. Most of the palm oil in Uganda is imported from Malaysia and is purchased mainly by the two largest industries, Mukwano and BIDCO, which dominate the industry.

2.3.4 Market Analysis of Fortified Maize Flour

Contrary to wheat flour and edible oil and fat processing industries, the structure of the maize processing industry is dominated by micro and small-scale millers accounting for 63.1 percent (SPRING 2017) of the maize processors. These mills are characterized by batch processing technologies with low production and other infrastructure challenges that preclude attempts at fortifying their maize flour.

Despite attempts to make fortification a mandatory requirement for all maize flour processors meeting the 20 MT threshold, only 28 percent of the maize millers meeting the 20 MT threshold are currently fortifying (USAID Advancing Nutrition 2022), with an estimated annual production capacity of only 41,292 MT of fortified maize flour. Assuming that each individual consumes 200 grams per day of fortified maize flour, the existing maize mills would reach approximately 1,400,205 Ugandans, a proportion that is too low, accounting for only 1–3 percent of the total population. This prompts the proposal for targeted maize flour fortification as seen from the production capacities detailed in Table 4.

2.4 Market Analysis of Fortified/Iodized Salt

Uganda has been recognized by the East Central and South African region for its successful salt iodization program, with a household coverage of over 93 percent. (GAIN 2017). The UNPS 2018/19 results on adequacy of fortification in salt samples collected at households showed 99.3 percent of the samples were compliant. (UBOS, 2020). These rates are largely attributed to the fact that the majority of the salt is imported from Kenya, facilitating compliance monitoring at points of entry/import. Local production of fortified/iodized salt contributes only 3 percent to the national demand from the two industries currently producing iodized salt with an average installed capacity of 310 MT and an average actual annual production capacity of 80 MT.

Table 4. Production Capacities of Industries and Market Share of Fortified Maize Flour

Company	Number of production days	Actual daily production	Installed daily production (MT)	Actual Annual production (MT)	Estimated annual capacity (MT)	Actual market share (%)	Potential market share at capacity (%)
A	180	35	48	6,300	8,640	15	8
B	240	50	72	12,000	17,280	29	17
C	240	50	75	12,000	18,000	29	18
D	250	20	180	5,000	45,000	12	44
E	95	20	50	1,900	4,750	5	5
F	75	20	43	1,500	3,225	4	3
G	144	18	30	2,592	4,320	6	4
H	50	Depends on orders	20	N/A	1,000	0	1
Total				41,292	102,215	100	100
Number of covered persons if each consumed 200 grams/day of fortified maize flour				565,644	1,400,205	1–3% of the population would be reached with fortified maize flour; hence the proposal for targeted fortification	

Source: USAID Advancing Nutrition Needs Assessment Report 2022

Despite the current challenges in the maize milling industry, private sector players have established additional large-scale industries to produce fortified wheat and maize flour, with the commitment to increase production and supply of fortified foods demonstrated through key developments, such as the remarkable expansion in production capacities and adoption of new technologies by the different producers. Strong private sector involvement in the promotion of fortified foods has been exhibited by some industry players.

3.0 Assessing the Capacity of Sugar and Bouillon Cubes Fortification in Uganda

3.1 Capacity of Sugar Processors for Fortification with Vitamin A

Fortification of sugar with vitamin A in Uganda is voluntary. Although there is a standard for sugar fortification, food and drug regulations do not require sugar to be fortified. Despite considerations as an attractive potential food vehicle for fortification during initial fortification discussions in the early 1990s, the high consumption of sugar by over 95 percent by the population has been associated with risks to noncommunicable diseases like type 2 diabetes.

3.1.1 Sugar Production in Uganda

Uganda is the largest producer of granular brown sugar among the three countries in the East African region (Uganda, Kenya, Tanzania), with an annual production of about 500,000 MT as of May 2017 (Philomena et al. 2017), closely followed by Kenya with 441,000 MT annual production. Most of the sugar consumed locally is from domestic production (67 percent), with the remaining 23 percent being imported mostly from South Africa and Tanzania (USCTA 2008). There has been an increase in sugar production in Uganda over the past two decades, from 102,527 MT in 1998 to 197,297 MT in 2007 (USCTA 2008) and to 438,360 MT in 2014 as detailed in Table 5 below.

Table 5. Production Capacities of Sugar Industries in Uganda

Pro-ducer	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2014 ^b
Kakira	49,450	61,234	58,650	56,504	75,268	87,296	84,160	88,292	93,182	96,786	180,000
Kinyara	35,478	41,700	50,209	52,948	57,900	53,799	65,137	61,299	60,201	58,062	120,360
SCOUL	17,599	23,248	28,091	24,528	32,795	35,579	46,819	44,137	38,117	37,444	73,500
Others										5,000	35,000
Sugar & Allied Industries Limited											29,500
Total Pro-duction	102,527	126,182	136,950	133,980	165,963	176,674	196,116	193,728	191,500	197,292	438,360

Source: Uganda Sugar Cane Technologists' Association (USCTA) 2008; Wikipedia 2016

3.1.2 Sugar Industries in Uganda

There are currently 14 functioning sugar industries in Uganda (Mufumba 2022), with Kakira Sugar Works Limited, Kinyara Sugar Works, and Sugar Corporation of Uganda Limited (SCOUL) the major three mills as detailed in Table 6 (USCTA 2008; Wikipedia 2016).

Table 6. Sugar Industries by District Location in Uganda

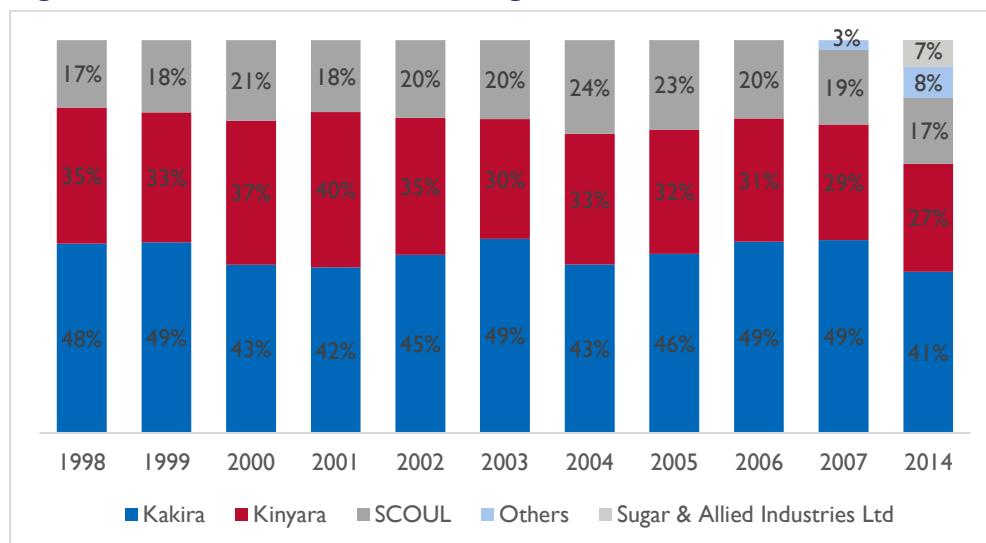
#	Name of producer	District location
1	Kakira Sugar Works Limited	Jinja
2	Kinyara Sugar Works Limited	Masindi
3	SCOUL	Lugazi
4	GM Sugar Uganda Limited	Buikwe
5	Sango Bay Estates Limited	Kakuuto
6	Amuru Sugar Works Limited	Amuru
7	Atiak Sugar Factory	Amuru
8	Bugiri Sugar Factory	Bugiri
9	Buikwe Sugar Works Limited	Buikwe
10	Busia Sugar Limited	Busia
11	Hoima Sugar Limited	Hoima
12	Kamuli Sugar Limited	Kamuli
13	Kenlon Industries Uganda Limited	Buyende
14	Kyankwanzi Sugar Works Limited	Kyankwanzi
15	Mayuge Sugar Industries Limited	Mayuge
16	Mukwano Sugar Factory	Masindi
17	Sugar & Allied Industries Limited	Kaliro

Source: https://en.wikipedia.org/wiki/List_of_sugar_manufacturers_in_Uganda#cite_ref-Rpt2014_14-0

3.1.3 Market Analysis of Sugar Produced in Uganda

As reflected in Figure 3, the three big sugar industries (Kakira, Kinyara, and SCOUL) remain dominant in the market, with a total market share of over 90 percent of the total national sugar requirement despite the establishment of new sugar industries shown Table 6 (USCTA 2008; Wikipedia 2016).

Figure 3. Annual Market Share in Sugar Production



Source: USCTA 2008; Wikipedia 2016

3.1.4 Cost Implications of Sugar Fortification in Uganda

Studies on the cost of providing 100 percent estimated average requirement of vitamin A annually for each individual found it was more expensive for sugar fortification (assessed at the Ugandan national standard of 15 mg/kg and East Central and Southern Africa [ECSA] standards of 10 mg/kg at the production level) when compared to oil fortification (fortified with vitamin A at a standard of 35 mg/kg at production level). The higher cost of sugar fortification results from a more expensive encapsulated powder form of vitamin A. Sugar fortification will require a larger yet necessary investment as detailed in Table 7. However, Table 7 shows that both types of fortification are economically feasible because the price increase of the fortified products is relatively low, with 0.26 percent for oil and 0.74–1.06 percent for sugar (Fielder et al. 2009).

Table 7. Cost Comparison of Edible Oil and Sugar Fortification in Uganda

Parameter	Edible oils	Sugar	
		Uganda formula	ECSA formula
Annual cost per person	US\$0.030	US\$0.135	US\$0.09
Cost per MT of food	US\$4.84	US\$10.79	US\$7.50
Annual production in the country	100,000 MT	200,000 MT	200,000 MT
Total cost for the country	US\$0.48 million	US\$2.2 million	US\$1.50 million
Food price per kilogram in 2008	US\$1.88	US\$1.02	US\$1.02
Increase in price due to fortification	0.26%	1.06%	0.74%
Initial investment in equipment per factory*	US\$ 19,050	US\$120,000	US\$120,000

*These amounts are for 10 years of operation.

Source: Fortification of Vegetable Oil and Sugar with Vitamin A: Progress, Issues, Costs, and Prospects

3.1.5 Fortification Prospects of Sugar in Uganda

Sugar is a commonly consumed staple in Uganda with the potential to be a good food vehicle for fortification, and fortification of sugar in the country is possible. However, when compared with edible oil, vitamin A fortification of edible oil is 4.6 times more cost effective than vitamin A sugar fortification (Fielder and Afidra 2010). Relatedly, Uganda does not encourage the promotion of sugar fortification with vitamin A due to the likelihood of individual vitamin A intoxication from other interventions, such as supplementation or biofortification that promote vitamin A intake. The high consumption of fortifiable sugar, currently at over 95 percent of the population, increases the risk of noncommunicable diseases like diabetes.

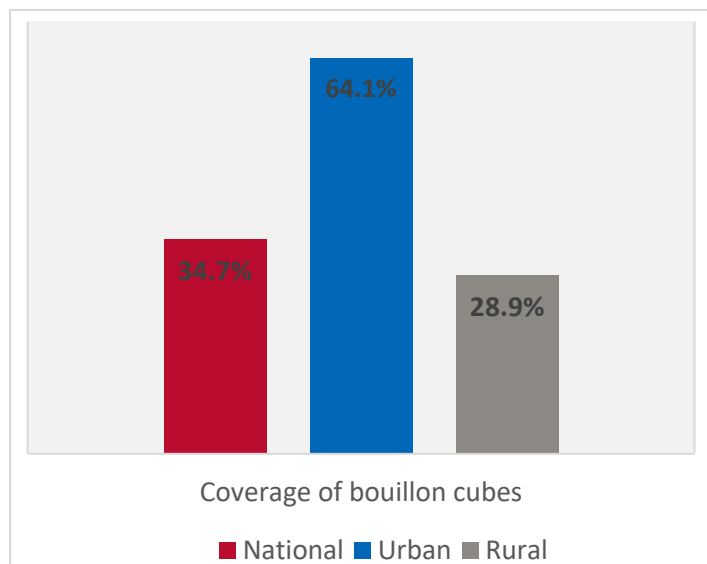
3.2 Fortification Prospects of Bouillon Cubes in Uganda

Bouillon cubes are mostly imported to Uganda from South Africa by Unilever Uganda Limited. They contain salt, spices and flavors, vegetables, and/or hydrolyzed vegetable protein, and are used to enhance flavor and taste of homemade meals.

3.2.1 Coverage of Bouillon Cubes in Uganda

Given the universal consumption across income classes and both urban and rural populations, these condiments may be an integral part of the system. According to the 2015 FACT survey, the national coverage of households consuming fortifiable bouillon cubes was 34.2 percent, with 64.1 percent in urban households and 28.9 percent in rural households, as shown in Figure 4.

Figure 4. Household Coverage of Bouillon Cubes in Uganda



Source: FACT Survey in Uganda, 2015

4.0 Premix Brands and Suppliers in Uganda

Premix used by fortifying food industries in Uganda is imported. The majority of the large fortifying food industries usually import premix directly from the manufacturers, while a few of these industries source premix/fortificants from three in-country distributors (Amesi [K] Limited, Bakers Best Ingredients, and Prime Merchantiles Limited) who serve as local agents or suppliers of international manufacturers.

The National Drug Authority (NDA), according to the provisions of the food fortification regulation, is delegated to undertake premix producer certification, monitoring imports of fortificants and their supply. However, the NDA legal framework only supports regulatory monitoring of drugs and medicines, which has limited the NDA’s legal capacity to institutionalize and regulate manufacturers and suppliers of fortificants/premix and the quality of fortificants. This, in turn, has resulted in nonconforming premixes on the market, affecting the fortifying food industries’ compliance to the fortification standard. In addition, importers are required to source fortificants from the NDA-approved list of manufacturers, with authorization evidenced by a general manufacturing practice certificate that covers a three-year validity period, though this has not been functional.

A regional inspection of premix storage facilities in Uganda by the NDA in 2022 with support from USAID Advancing Nutrition highlighted a number of international companies supplying the local fortifying food industries in Uganda. Badische Anilin und Soda Fabrik (BASF)-Germany and Nutrifix Technologies-South Africa exhibited equal and dominant market share compared to other international suppliers, as detailed in Table 8. In addition, the results indicated that existing local sources (agents) for supply of fortificants account for 50 percent of the Ugandan market share, with Amesi (K) Limited supplying the majority of local producers of fortified foods.

Table 8. List of Local and International Premix Suppliers in Uganda

Food vehicle	Premix manufacturer	Local supplier (agent)	Number of industries using premix	Premix brand name
Edible Oil	BASF-Germany/DSM-SA	None	2	BASF
	BASF-Germany	None	2	BASF
	Hexagon Nutrition (India)	None	1	Hexagon
	Hexagon Nutrition (India)	None	1	Retinyl Palmitate
Maize	Nutrifix Technologies	Amesi (K) Ltd.	1	Nutrifit
	Mir pain Gida San Ve	Bakers Best Investment Ltd.	1	Mirpain Premix
	DSM South Africa	None	2	Nutrivit MF

Food vehicle	Premix manufacturer	Local supplier (agent)	Number of industries using premix	Premix brand name
	DSM South Africa	None	1	Fortitech Premixes
	Hexagon Nutrition (India)	None	1	Hexagon
	Mirpain Gida San Ve	None	1	Mirpain Premix
	MuhlenChemie-Germany	Prime Merchantiles	2	Elcovit
	Nutrifix Technologies SA	Amesi (K) Ltd.	2	Nutrivit (MF & WF)
Wheat	BASF-Germany	None	1	Nutrivit WF
	Hexagon (Germany)	None	1	Hexagon
	Hexagon Nutrition (India)	None	1	Foatvit
	Mirpain Gida San Ve	None	1	Supplevit
	MuhlenChemie-Germany	None	4	Elcovit
	Nutrifix Technologies SA	Amesi (K) Ltd.	4	Nutrivit WF
Salt	Calibre Chemicals Pvt. Ltd. (India)	None	2	Potassium Iodate

5.0 Prepackaging and Labeling of Fortified Foods in Uganda

This section provides information on: (a) the packaging sizes of fortified food products; (b) labeling of fortified foods; and (c) guidelines for use of the food fortification logo on fortified foods.

5.1 Prepackaging of Fortified Foods in Uganda

Prepackaging of fortified foods in Uganda is done in accordance with the guidelines in the Statutory Instrument Supplements (2020) Number 103 and the Weights and Measures (Sale and Labeling of Goods) (Amendment) Rules as shown in Table 9.

Table 9. Package Weights and/or Volumes of Fortified Food in Uganda

Food vehicle	Package weights
Wheat flour	2 kg, 25 kg, 50 kg
Maize flour	1 kg, 2 kg, 5 kg, 10 kg, 25 kg, 50 kg, 100 kg
Salt	100 g, 200 g, 500 g, 1 kg, 2 kg, 5 kg, 10 kg, 25 kg, 50 kg
Edible oils and fats	25 ml, 50 ml, 200 ml, 500 ml, 1 L, 3 L, 5 L, 10 L, 20 L or minimum; 5 kg, 9 kg, 15 kg, and 18 kg

Source: Statutory Instrument Supplements 2020 No. 103; Weights and Measures (Sale and Labeling of Goods) (Amendment) Rules, 2020

5.2 Labeling of Fortified Foods in Uganda

Labeling of fortified foods in Uganda is done as per the stipulated guidelines in the East African Standard (EAS) 38 Labeling of Prepackaged Foods specifications. In addition to the requirements in EAS 38, each package shall be legibly and indelibly marked with the name of the product as “Fortified.” Also, food products should meet the labeling requirements in the specific product standards:

- US EAS 35:2021, Fortified edible salt – Specification
- US EAS 767:2019, Fortified wheat flour – Specification
- US EAS 768:2019, Fortified milled maize (corn) products – Specification
- US EAS 769:2019, Fortified edible fats and oils – Specification.

Nutritional and health claims shall only be declared on the fortified products where permitted by national legislation. Such claims shall be in compliance with EAS 804 and EAS 805.

5.2.1 Food Fortification Logo on Fortified Food Products

The MOH developed the Fortification-Logo (F-Logo) for use on fortified food packages to enable consumers to easily identify fortified brands. The MOH delegated the responsibility of enforcing the use of the F-Logo guidelines on fortified food products to the Uganda National Bureau of Standards. The use is still voluntary, and there are calls for strengthening efforts for enforcement and compliance by food industries.

6.0 Conclusion

According to the results of the profile, the majority of wheat flour and edible oils and fats processors in Uganda meet the classification for large-scale food fortification, and the largest number of these processors are in the Central region, closely followed by the Eastern region. In total, 77 percent of the market share is held by the largest 6 wheat flour industries while, in the case of edible oils and fats, 70 percent of the market share is held by the largest 2 edible oils and fats industries. The existing mills of both edible oils and fats and wheat flour would ably satisfy national demand for fortified wheat flour and edible oil. However, the coverage of fortified maize flour is still very low, with the current production in the country reaching approximately 1–3 percent of the population. This draws attention to the need for a targeted maize flour fortification program, as there are financial and logistic challenges to bring micro and small-scale maize flour processors into the fold of the fortification program.

7.0 References

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