ECONOMIC POLICY RESEARCH CENTRE

CASE STUDY 2

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DAIRY

AGRO-INDUSTRIALISATION

Expansion of the product space in Uganda's dairy value chain

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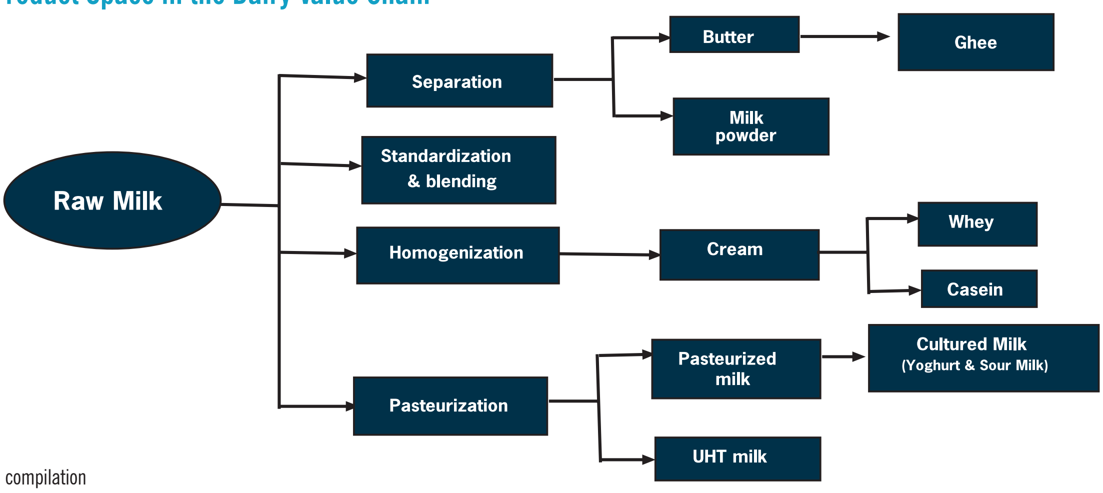
1. Industrial Production Structure of the Dairy Value Chain

Capacity has been developed in Uganda to produce a wide range high value dairy products i.e. powdered milk, ghee, butter oil, UHT milk, casein/whey, pasteurized milk, yoghurt, cream, fermented milk, and cheese (Figure 1). Product diversification in the dairy industry is sustained by scale of operation, and seems to be more viable for relatively larger dairy processing firms with installed processing capacity of over 280,000 litres per day (Table 1). A sizeable number of local dairy firms (currently 100 in total), engaged in manufacturing a diversified line of dairy products (Table 1).

2. Dairy Industry Product Space

The 9 largest dairy manufacturing firms control over 95 percent of the market share of high value products in the country (Table 2). It is also worth noting that these firms are operating at 57 percent of the installed capacity (Table 1). Implying that: (i) raw milk production is low in relation to processing capacity in Uganda, hence investment in high tech technologies is not required in the medium term towards value addition in the dairy industry should milk production increase in the country. Substantial progress has been made with respect to the export of both skimmed (not concentrated), whole milk (concentrated) and cream dairy products valued at over USD 79 million in 2017compared to USD 0.2 million in 2006 (Figure 2). Indeed, since 2006, exports of high value dairy products have been growing while imports decline (Figure 3).

Figure 1: Product Space in the Dairy Value Chain



Source: Author's compilation

Table 1: Dairy sector Processing Capacity and Product Space

	firms	Installed Capacity	Utilized capacity	Utilized capacity (%)	Pow-dered milk	Firms Producing Particular Product Line									
		Liters per day (average)				Ghee	Butter oil	butter	UHT milk	casein	Pasteur-ized milk	Yoghurt	cream	Fermented milk	cheese
Large Scale	9	288,500	163,900	56.8	4	5	1	5	8	1	4	6	2	3	0
Medium Scale	13	6,900	3,580	51.9	0	2	0	0	1	0	7	8	5	0	4
Small-scale	45	804	545	67.7	0	4	0	0	1	0	6	32	9	2	6
Cottages	33	96	84	87.2	0	2	1	0	0	0	1	30	1	0	2
Overall	100			65.9	4	13	2	5	10	1	18	76	17	5	12

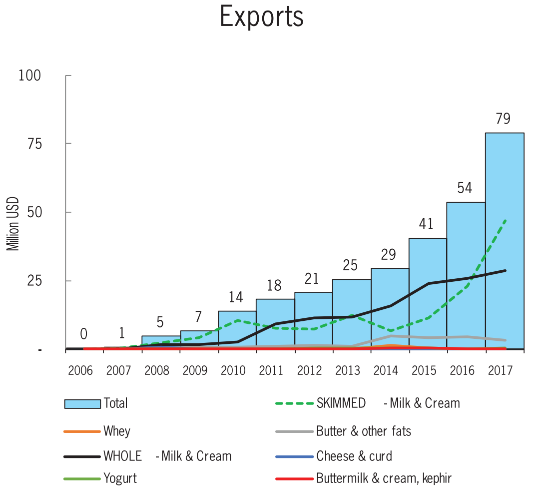
Source: Dairy Development Authority (2018)

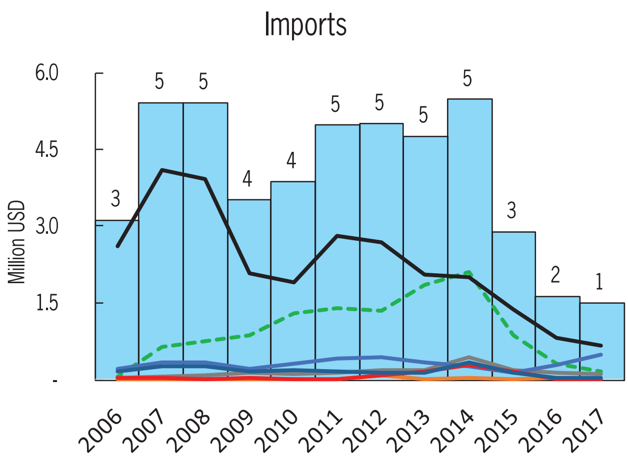
Table 2: Installed capacity for the leading dairy manufactures in Uganda

No	company	District	Region	Installed capacity	Utilized capacity	Market share	Products
1	Pearl dairy farms limited	Mbarara	southwestern	800,000	500,000	32.1%	Powdered milk, Ghee, butter oil, butter UHT milk
2	Amos dairies	Kiruhura	southwestern	700,000	190,000	12.3%	Butter, ghee, powdered milk, casein
3	Brookside limited	Kampala	central	500,000	450,000	29.1%	Pasteurized milk, UHT milk, yoghurt, ghee, butter, milk powder, bongo, cream
4	Jesa farm dairy	Wakiso	central	160,000	150,000	9.7%	Pasteurized milk, yoghurt, butter, cream, UHT milk, fermented milk
5	Lakeside dairy limited	Mbarara	southwestern	100,000	40,000	2.6%	Pasteurized milk, UHT milk, butter, ghee
6	GBK Dairy products limited	Mbarara	southwestern	100,000	40,000	2.6%	UHT milk, yoghurt
7	Vital Tomosi dairy	Kiruhura	southwestern	100,000	2000	0.13%	Yoghurt, UHT milk, pasteurized milk, milk powder
8	Birunga dairy industries(u) Ltd	Kisoro	southwestern	72,000	4,8000	3.1%	UHT milk, fermented milk, yoghurt
9	Rainbow Industries(u) lim-ited	Mukono	central	65,000	5,5000	3.6%	UHT milk, ice cream, yoghurt, ghee
	Total			2,597,000	1,475,000	95.2%	

Source: Dairy Development Authority (2018)

Figure 2: Export and Import Trends in Dairy Products (Million USD)





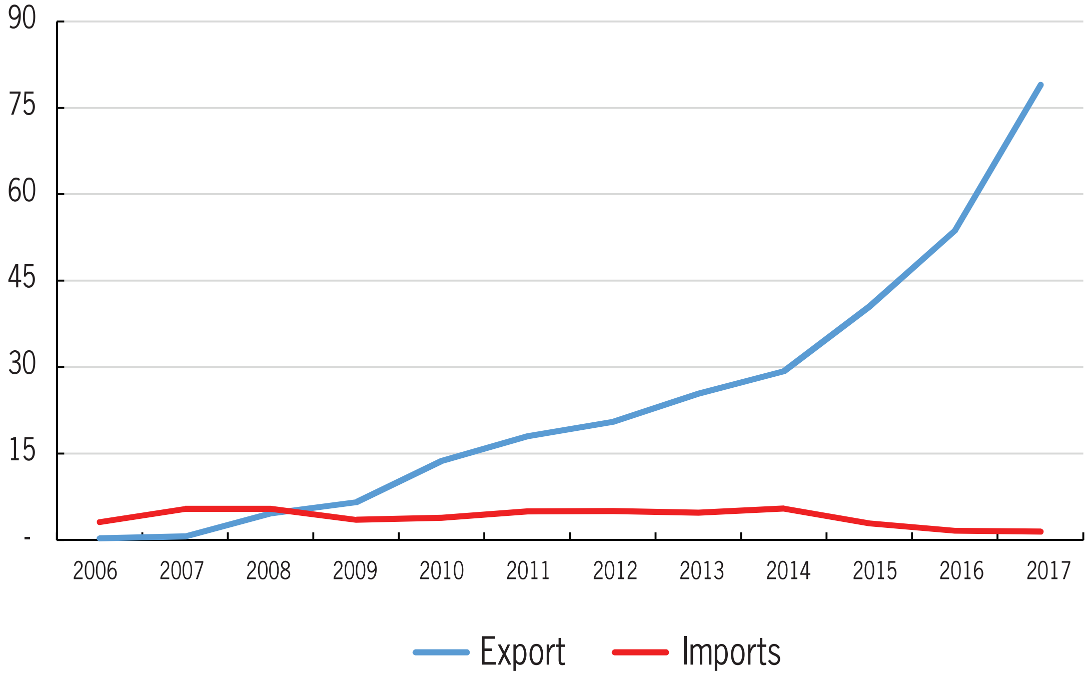
Source: Trademap, 2018

Table 3: Uganda's dairy exports and imports (million USD) 2006-2017

	Uganda's imports (from world											
Product label	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Milk and cream (Skimmed)	0.07	0.64	0.77	0.88	1.32	1.41	1.36	1.86	2.12	0.89	0.32	0.18
Whey	0.00	-	0.01	0.00	0.00	0.01	0.10	0.02	0.02	0.01	0.04	0.01
Butter and other fats	0.03	0.04	0.07	0.12	0.11	0.13	0.17	0.18	0.44	0.17	0.12	0.10
Milk & cream (whole)	2.63	4.11	3.94	2.10	1.92	2.83	2.69	2.06	2.00	1.37	0.82	0.67
Cheese and curd	0.21	0.35	0.34	0.23	0.32	0.42	0.44	0.34	0.26	0.15	0.29	0.48
Buttermilk and cream, kephir	0.03	0.02	0.02	0.02	0.02	0.01	0.10	0.16	0.30	0.18	0.01	0.01
Yogurt	0.15	0.25	0.27	0.16	0.18	0.17	0.14	0.14	0.34	0.13	0.04	0.04
Total	**3.12**	**5.42**	**5.41**	**3.51**	**3.87**	**4.97**	**5.00**	**4.76**	**5.47**	**2.89**	**1.63**	**1.49**
	Uganda's exports to world in USD											
Product label	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	2016	2017
Milk & cream (skimmed)	0.11	0.38	1.98	4.10	10.42	7.75	7.36	12.23	6.62	11.35	22.91	46.80
Whey	0.01	-	0.01	0.00	0.00	-	0.06	0.03	1.22	0.42	0.08	0.04
Butter & other fats	0.10	0.03	0.24	0.60	0.59	0.82	1.18	0.83	4.72	4.02	4.28	3.02
Milk & cream (Whole milk)	0.09	0.23	1.71	1.81	2.62	9.28	11.57	11.82	15.92	23.93	26.05	28.81
Cheese & curd	-	0.01	0.62	0.02	0.02	0.04	0.04	0.05	0.05	0.02	0.06	0.04
Yogurt	-	-	0.04	0.05	0.04	0.08	0.26	0.39	0.46	0.48	0.22	0.31
Buttermilk & cream, kephir	-	-	0.02	0.01	0.04	0.05	0.04	0.08	0.33	0.33	0.10	-
Total	**0.31**	**0.64**	**4.62**	**6.60**	**13.74**	**18.02**	**20.51**	**25.44**	**29.32**	**40.54**	**53.69**	**79.02**

Source: Trademap, 2018

Figure 3: Export and Import in Dairy Products (Million USD)



Source: Trademap, 2018

3. Dairy industry critical gaps and required strategic decisions

Value Chain Level	Critical Gaps	Strategic Decisions
Production: South western, Northern, Cattle corridor: ranches and small holders	▪ Seasonal variation milk production ▪ Weak ~~services.~~ veterinary services e.g. artificial insemination reaches 10%; diseases control (foot and mouth, tick management) ▪ Limited access to financial services like loans ▪ Limited knowledge on pasture management	▪ Increase raw milk production with price stabilization ▪ Fund milk collection cooperative centers to make them bankable (governable, accountable), with diversified roles (SACCOs), able to negotiate contracts with processors, and enforce milk quality standards, ▪ DDA to support linkages between public R&D institutions (NaGRIC/DB, Vet services) and grass root cooperatives; ▪ Construct more valley dams, solar powered water systems to address weather challenges. ▪ Scale up public investment in disease control. ▪ Research and development for breed improvement (disease resistance) without necessarily losing local varieties. ▪ Put in place the legal framework for: (i) livestock identification and traceability system, (ii) Local vaccine and drug manufacture, and (iii) Food standards and statutory regulations. ▪ Industrial production of dry season feeds including forage, hay, conservation.
Processing Very many processors with small, medium; cottage, large scale sophisticated processing	▪ High end manufacturing plants are operating 57% capacity ▪ 40% of Plants concentrated in one region (S. western Uganda) ▪ No high end manufacturing processing plants in some parts of cattle corridor (Kiboga, Kyankwanzi, Nakaseke, Nakasongola, etc)	▪ Finance the establishment of centers and coolers linked to farmer cooperatives to strengthen the formal milk collection network and enhance capacity utilization of existing plants ▪ UDC to identify investor to setup processing plants in cattle corridor (Kiboga, Kyankwanzi, Nakaseke, Nakasongola, etc) ▪ Incorporate specialised features for dairy cooperatives (one-stop-centre for milk collection and access to inputs). ▪ Rehabilitation of milk collection centres in milk shade areas using a commercially sustainable model.
Marketing	▪ Over 60% of milk is marketed as un processed	▪ Need to take advantage of expanding export market (USD 80 million per annum). ▪ Skilling for development of dairy cottage industry. ▪ Ensure access to market for excess milk produced during rains by additional investments in the manufacturing powdered milk.

The Economic Policy Research Centre (EPRC) is an autonomous not-for-profit organization established in 1993 with a mission to foster sustainable growth and development in Uganda through advancement of research –based knowledge and policy analysis.

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