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FOOD AND BEVERAGE PROCESSING



Packed Juice and Syrup Production

Feasibility Study

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Market study · Technology and engineering · Financial analysis

Addis Ababa, Ethiopia

2026 EDITION

Project feasibility study · Ethiopia · Gebeya251.com

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Executive Summary

This study examines the establishment of a plant for the production of packed juice and syrup in Addis Ababa with an installed capacity of 300,000 litres per annum, operating one shift of 8 hours per day, 300 working days per annum.

The total investment requirement is estimated at ETB 105.68 million. Fixed investment accounts for ETB 85.09 million, or 80.5 per cent of the total; pre-operating cost including interest during construction accounts for ETB 10.57 million; and initial working capital accounts for ETB 10.03 million. Of the total, ETB 31.92 million is required in foreign currency for imported machinery and equipment, equivalent to USD 198 thousand at the ruling rate of ETB 161.45 to the United States dollar.

At full capacity the plant produces 300,000 litres per annum with a sales value of ETB 85.16 million at an ex-factory price of ETB 283.85 per L. Annual production cost at full capacity is ETB 66.31 million, of which raw and auxiliary materials account for 55.3 per cent.

Discounted at 18 per cent, the project returns a net present value of ETB -2.31 million and an internal rate of return of 17.4 per cent. The initial investment is recovered in 4.7 years. The break-even point is reached at 50.3 per cent of installed capacity. On these assumptions the project does not clear the 18 per cent required return. The project should not proceed on the configuration modelled here without the changes set out in Chapter 9.

The project runs at a loss in its first two operating years, with cumulative losses before it turns profitable of ETB 11.69 million. That amount must be funded in addition to the investment cost shown above, and the promoter should plan for it explicitly.

The project creates employment for 37 people. It establishes backward linkages with the horticulture sub-sector and the sugar industry and generates government revenue through corporate income tax, payroll tax and value added tax.

Summary of results

Table 1.1 Summary of project results

Indicator	Unit	Value
Installed capacity	litres per annum	300,000
Ex-factory price	ETB per L	283.85
Sales revenue at full capacity	million ETB	85.16
Total initial investment	million ETB	105.68
of which foreign currency	million ETB	31.92
Production cost at full capacity	million ETB	66.31
Net profit after tax, final year	million ETB	13.19
Net present value at 18 per cent	**million ETB**	**-2.31**
Internal rate of return	**per cent**	**17.4**
Payback period	years	4.7
Break-even capacity utilisation	per cent	50.3

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1.2 Treatment of estimates

Figures in this study fall into three classes, and the text identifies which applies. Published data are taken from the named institution with its reporting period. Planning estimates are technical norms or unit prices restated to the current price level by the method set out above. Projections are forward estimates derived from a stated growth assumption. A separate schedule of outstanding validation requirements is issued with this study and lists every figure that should be confirmed before an investment decision is taken.

2 Product Description and Application

Packed juice is the unfermented drink obtained from sound, ripe fruit. It can be produced from apple, mango, peach, guava and other fruits. Juice drinks carry a fruit content of between 6 and 30 per cent together with water, fruit aromas, sugar and, in some products, food acids such as malic or citric acid, which provide the intended sourness.

Syrup is a concentrated product obtained by evaporating juice. It is used as a garnish, as a tenderiser and meat marinade, as a topping on desserts, pancakes and cereals, and as a flavouring additive in drinks and baking.

Processing of juice and syrup is governed by the relevant Ethiopian Standard for fruit juices and nectars. Raw materials, additives and processing procedures must be selected to comply with it, and the current version of the standard should be obtained from the Ethiopian Standards Institute before plant design is finalised.

3 Market Study and Plant Capacity

3.1 Demand assessment

Supply of packed juice and syrup in Ethiopia has historically been met mainly from imports, supported by a small number of domestic processors. Customs import data are used here as the proxy for unsatisfied demand, because domestic production statistics covered orange juice only. Import volumes rose from an annual average of about 677 tonnes in 2001-2003 to about 2,267 tonnes in 2004-2006, about 6,718 tonnes in 2007-2008 and about 8,122 tonnes in 2009-2011, an average growth rate of roughly 15 per cent over the final five years of that series.

The effective demand base adopted is the 8,122 tonnes established for 2012, and a 5 per cent annual growth rate is carried forward. That rate is deliberately below the historic import growth rate, because the foreign exchange regime has changed fundamentally since the series was compiled: the floating of the birr has raised the landed cost of imported juice sharply, which suppresses import volumes while improving the competitive position of local processors. The net effect on total consumption is not established by the available data, and the conservative rate reflects that.

Table 3.1 sets out the projection. Demand should be re-anchored on current Ethiopian Customs Commission import data and on a retail audit of the Addis Ababa market before an investment decision is taken.

Table 3.1 Projected demand for packed juice and syrup, 2026 to 2036 (tonnes)

Year	Projected national demand	Unsatisfied demand
2026	16,081	16,081
2027	16,885	16,885

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7 Financial Analysis

The financial analysis rests on the technical data in the preceding chapters and on the assumptions set out in Table 1.2. The construction period is one year. The project is financed 30 per cent by equity and 70 per cent by a term loan at 20 per cent, with interest during construction capitalised and principal repaid in equal annual instalments from the second operating year. Corporate income tax is applied at 30 per cent with losses carried forward. No income tax exemption is assumed in the base case; the effect of a five-year exemption is shown in the sensitivity analysis in Chapter 8.

Working capital is derived from 30 days of accounts receivable, 30 days of local raw material stock, 120 days of imported raw material stock, 1 day of work in progress, 30 days of finished goods, 5 days of cash in hand and 30 days of accounts payable. Depreciation is straight line at 5 per cent on buildings, 10 per cent on machinery and equipment and 20 per cent on vehicles and office equipment; pre-operating cost is amortised over five years.

7.1 Total initial investment

The total investment requirement including working capital is estimated at ETB 105.68 million. Fixed investment of ETB 85.09 million represents 80.5 per cent of the total, pre-operating cost including interest during construction ETB 10.57 million or 10.0 per cent, and initial working capital ETB 10.03 million or 9.5 per cent.

Table 7.1 Total initial investment cost ('000 ETB)

No.	Cost item	Local cost	Foreign cost	Total cost	Share (%)
1	Fixed investment				
1.1	Land lease, down payment	324.0		324.0	0.31
1.2	Buildings and civil works	36,000.0		36,000.0	34.06
1.3	Machinery and equipment	7,112.5	31,920.0	39,032.5	36.93
1.4	Vehicles	7,299.0		7,299.0	6.91
1.5	Office furniture and equipment	2,433.0		2,433.0	2.30
	Sub-total	**53,168.5**	**31,920.0**	**85,088.5**	**80.51**
2	Pre-operating cost				
2.1	Pre-operating cost	3,168.1		3,168.1	3.00
2.2	Interest during construction	7,397.7		7,397.7	7.00
	Sub-total	**10,565.8**		**10,565.8**	**10.00**
3	Initial working capital	10,027.1		10,027.1	9.49
	Grand total	**73,761.4**	**31,920.0**	**105,681.4**	**100.00**

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Figure 7.4 Cumulative discounted cash flow at 18 per cent

Table 7.3 Financial evaluation summary

Measure	Result
Net present value at 18 per cent	ETB -2.31 million
Internal rate of return	17.45 per cent
Payback period	4.7 years
Break-even sales value	ETB 42,835,201
Break-even capacity utilisation	50.3 per cent
Return on sales, final year	15.5 per cent
Return on total investment, final year	14.0 per cent

Source: study computation, 2026.

7.8 Economic and social benefits

The project creates direct employment for 37 people and generates ETB 24.36 million in corporate income tax over the period assessed, in addition to payroll tax and value added tax. It establishes backward linkages with the horticulture sub-sector and the sugar industry and contributes to import substitution in packaged beverages and to a market outlet for domestic fruit growers.

8 Risk and Sensitivity Analysis

The base case rests on assumptions that carry different degrees of uncertainty. The sensitivity analysis below varies each principal assumption in turn, holding the others constant, and reports the effect on net present value and the internal rate of return.

Table 8.1 Sensitivity of project returns

Case	Net present value (million ETB)	Internal rate of return (%)
Base case	**-2.31**	**17.4**

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