



GHANA AGRIBUSINESS PLAYBOOK SERIES

2026



CASSAVA

Value Chain Analysis

A mapped breakdown of the value chain, from farmgate to factory, and who captures what along the way.

Center for Entrepreneurship
Ashesi University



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<https://agribusinessplaybook.com/playbook/cassava>



Executive summary

THE THESIS

Ghana's cassava chain is real and huge, but it is short and shallow. Value climbs steeply as the crop moves from farm to processor to exporter, yet almost the whole harvest stops at the farm, because the middle of the chain, the aggregation, storage and reliable processing that would carry roots to a paying market, barely exists.

Key summaries



The evidence

About 12.5 percent of the crop is lost outright after harvest, and 29 percent once roots sold at a discount are counted. Only about a million tonnes of roughly 22 million reached industry in 2023. Ghana imported about US\$70 million of cassava-related products in 2020, mostly ethanol, against under US\$1 million of cassava-product exports. On the 2019 government figures, most of the gari chain's profit sits with the exporter and the least with the farmer.



The structure

The chain runs through eight links, from the stem in the ground to the consumer. A lifted root starts to spoil within two to three days, so the chain is short and local and is pulled along by what a farmer can sell that day. Power is lopsided: a few processors, large buyers and the state hold it, while farmers and small processors take the price on offer.





The opportunity

The openings are ranked: aggregation and storage close to the field, mid-scale processing tied to a signed buyer, import substitution against ethanol and imported starch, branded convenience gari, and certification to the Ghana standards. Unmet demand is estimated at 10,000 to 96,000 tonnes a year for high-quality flour and 9,000 to 85,000 tonnes for starch.



The finance behind it

GIRSAL guarantees and the Outgrower and Value Chain Fund already finance cassava-gari, and the state's minimum gari price of GH¢340 a 34 kg bag, offered through the National Food Buffer Stock Company since September 2025, gives a processor a number to plan around, within the limits of its purchase budget.



The contracts that hold

In a Ghanaian comparison of two outgrower schemes, the scheme that embedded inputs, technical advice and transport kept its growers at a lower price, while the one that only matched the market did not.



Who this is for

Students, entrepreneurs, investors and ecosystem actors. The practitioner intelligence table at the end gives the single most useful move for each.



Contents

The thesis: *value climbs steeply from farm to processor to exporter, but the crop stops at the thin farm link because the aggregation, storage and processing middle barely exists, and Ghana imports far more cassava products than it sells.*

A standalone edition of Pillar 6 of the Cassava Agribusiness Playbook. Figures, tables and footnotes are numbered locally; cross-references to other pillars point to the full playbook. Figures are as reported between June and August 2026 and may have changed since.

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Glossary

The terms used in this analysis, in plain language.

Value chain

the sequence of actors and steps that takes cassava from the planting stem to the consumer, and the value added at each step.

Aggregator

a trader or group that bulks, grades and moves roots from many scattered farms to a processor.

Post-harvest physiological deterioration (PPD)

the internal spoilage that starts within two to three days of lifting a root; the clock the whole chain runs against.

High-quality cassava flour (HQCF)

unfermented, food-grade cassava flour used as a partial substitute for wheat flour in baking.

Chips

dried slices of cassava root, a storable intermediate that lets a processor buffer supply.

Offtake

a buyer's commitment to purchase a stated volume, often at an agreed price.

Farm gate

the point of first sale, where the farmer hands the roots to a buyer.

The missing middle

the largely absent layer of aggregation, storage and reliable mid-scale processing between the farm and the paying market.

Gari

roasted, fermented cassava granules; Ghana's main processed cassava product.

Native, modified and food-grade starch

starch extracted from cassava roots; modified starch is treated for industrial uses, and food-grade starch meets food-safety specifications and commands the better price.

Outgrower scheme

a contract in which a processor or buyer supplies inputs or services to farmers in return for their crop.

Side-selling

a contracted farmer selling to another buyer, usually for quick cash, which breaks the contract.

Captive market

a market with few buyers and little price information, where sellers take the price offered.

ID1F

One District One Factory, the government programme that has funded district processing plants, some of which stand idle.

GIRSAL

the Ghana Incentive-Based Risk-Sharing System for Agricultural Lending, which guarantees up to 70 percent of an agricultural loan's principal.

GICSP

the Ghana Industrial Cassava Stakeholders Platform, which brings farmers, processors, government, fabricators and buyers together.

Import substitution

replacing imported products, such as ethanol and starch, with Ghanaian supply.

Power-interest grid

a map of each actor's power over the chain against its interest in it, used to decide whom to work with.

National Food Buffer Stock Company (NAFCO)

the state buyer that offers the minimum gari price, within its purchase budget.

OVCF

the Outgrower and Value Chain Fund, a contract-farming finance model that links an outgrower association, a technical operator and a bank.

Ghana standards and Codex limits

GS 237:2017 (gari) and GS 762:2008 (edible cassava flour) are Ghana's product standards; the Codex limit for total hydrogen cyanide is 10 mg/kg for cassava flour and 2 mg/kg for gari.



Cassava Value Chain Analysis

Manihot esculenta Crantz

Ghana's cassava chain is real and huge, but it is short and it is shallow. The value in cassava climbs steeply as the crop moves from farm to processor to exporter, yet almost the entire harvest stops at the first and thinnest link, because the middle of the chain, the aggregation, storage and reliable processing that would carry roots to a paying market, barely exists. The result is a country that grows more cassava than almost anyone and still imports far more cassava products than it sells. This analysis maps the chain link by link, follows the margin up it, names who holds the power, and sets out where the value can be captured.



~8%

the producer's share of the profit the gari chain generates

~73%

the exporter's share of that same chain profit

US\$70m vs US\$1m

cassava-product imports against exports, 2020

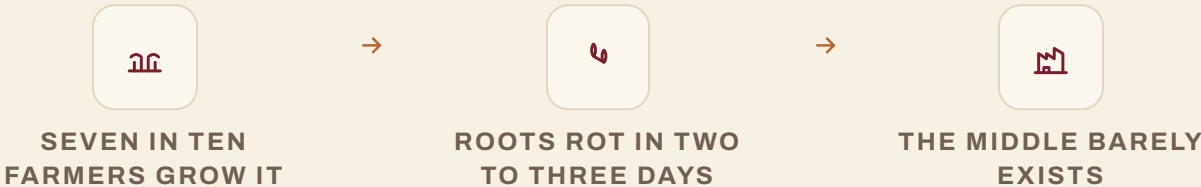


1. The chain, farm to fork

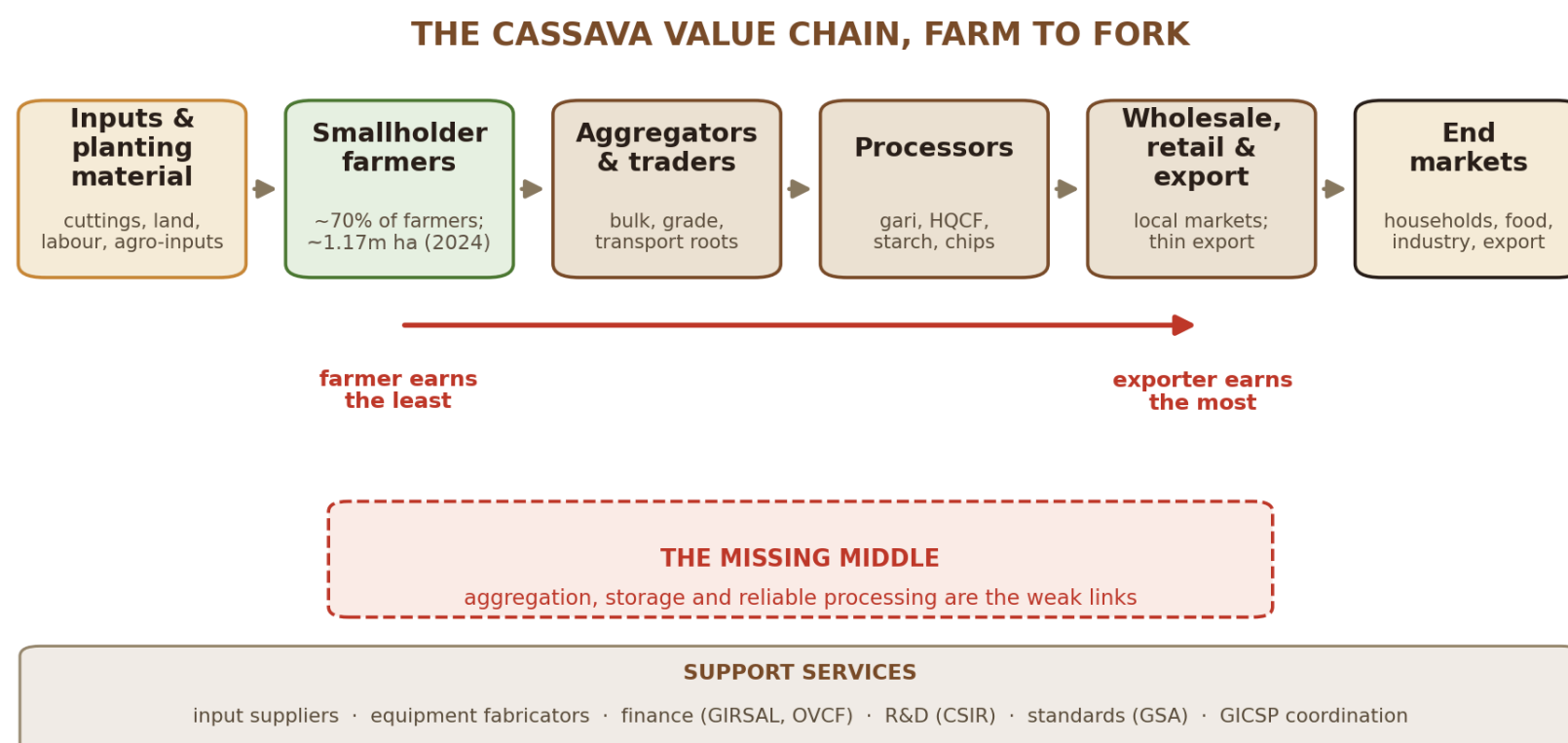
The cassava value chain in Ghana runs through a familiar set of actors: input and planting-material suppliers, the smallholder farmers, with over seven in ten of the country's farmers growing some cassava, the aggregators and traders who bulk and move the roots, the processors who turn them into gari, high-quality cassava flour, starch and chips, and the wholesalers, retailers and thin band of exporters who carry the product to its end market.¹ Around all of them sits a layer of support services: the equipment fabricators, the finance schemes, the research institutes and the standards body. Figure 1 lays out the whole



chain.



¹ Ministry of Trade and Industry, A Value-Chain Analysis of the Cassava Sector in Ghana (Accra: MOTI/EU-WACOMP, 2019), section 2.4 and Figure 3. The chain comprises farmers, aggregators, processors, exporters and transporters, supported by input suppliers, equipment fabricators, finance and certification providers; over 70 percent of Ghanaian farmers grow cassava.



Source: playbook synthesis, based on MoTI/WACOMP (2019)

FIGURE 1 The cassava value chain in Ghana, farm to fork.

The important part of this map is the arrows between the boxes, more than the boxes themselves. Roots leave the farm on a truck, a tricycle or a hand trolley within a day or two of harvest, because the crop starts to rot almost at once, and that single fact shapes everything downstream. The chain is pulled along by scattered, mostly household demand for fresh

roots and traditional foods, rather than organised around a large industrial buyer that plans its supply. So it runs the wrong way: it is driven from the bottom by what the farmer can sell today, when it should be pulled from the top by what a factory has contracted to buy. Turn that around, and the rest of this analysis becomes an opportunity list.

2. The chain, link by link

What matters is which link has a real number attached to it, who already stands there, and where the value leaks. Table 1 walks the eight links, from the stem in the ground to the consumer, and it is meant to be read as a

diagnostic rather than a description. The column that matters is the last one, the opening inside each break, and the column that should give an entrant pause is the money signal, because where it is blank, no figure has been published.

TABLE 1 The eight links of the cassava chain, who stands in each, and the opening inside each break.

THE LINK	WHO OPERATES IT	THE MONEY SIGNAL	WHERE IT LEAKS, AND THE OPENING
1. Input supply	Extension agents, agro-dealers, equipment fabricators, the outgrower firm	None measured: no stem price exists in the evidence	The seed market is missing; sell into a written buyer specification and deduct the stem from the delivered root price
2. Production	Smallholders (about nine in ten Ghanaian farm holdings are under two hectares), nucleus farms, hired and family labour	Contested, and swinging with the root price (see Pillar 5)	Value leaves as wages more than it stays as profit; the lever is yield
3. Post-harvest	Farmers, on-farm chippers and driers, bulkers, transporters	A penalty more than a spread: roots rejected at the gate are lost	The two-to-three-day clock; convert to a storable form at the farm
4. Processing	Cottage gari groups (women-led), flour and starch SMEs, two starch plants, one ethanol maker	The only fully measured link: per-tonne cost, price and profit for four products	Runs below capacity for want of roots or a buyer; certification is the door
5. Storage & logistics	Transporters, bulkers, tractor-trailer fleets, district assemblies	The largest single cost in moving fresh roots	Roots rarely travel far, so the catchment is small; move the dry weight rather than the wet
6. Marketing & trade	Bulkers and aggregators (the chain's leaders), wholesalers, traders, exporters	Thin, self-reported margins	Weak grading and weighing on the spot market; grading is the opening
7. Retail & distribution	Market retailers, supermarkets, institutional buyers	Thin; dried products earn more because they keep	Poor storage caps volumes; institutional buyers are the softest target
8. The consumer	Households, schools, hospitals and prisons, industry, breweries, export	Not a margin link; cassava beer sells below conventional beer	Cassava is a substitute for maize; rising middle incomes are the growing segment

Source: *playbook synthesis, anchored to MoTI/WACOMP (2019), Kleih/GASIP (2016) and FAO/MAFAP (2013).*



Q WHAT THIS MEANS

There are two different problems in this chain, and an entrant who confuses them buys the wrong fix. For ethanol the constraint the national analysis found is roots; for high-quality flour and chips it is the market; and for starch it is equipment and operating cost. The national value-chain analysis (MoTI, 2019) found a lack of a stable market for high-quality cassava flour in three of its six proposed processing clusters, against a shortage of raw material in only one, with a certification gap in all six. The one cluster short of roots, in Volta, is home to Caltech Ventures, the country's first cassava-ethanol plant. Contracting more farmers for a flour factory whose problem was never the farmers is the most expensive mistake in this pillar.

3. Where the profit goes



Follow the profit the gari chain generates and it pools at the top. On the government's own value-chain analysis, the producer's share of the chain's summed profit is about 8 percent, the processor's about 18 and the exporter's about 73. On these figures the exporter makes by far the largest profit and the farmer the smallest, although the source mixes units (an acre, a batch, a tonne), so the exact shares are only a rough guide. Figure 2 and Table 2 show the split.² The source labels this row 'profit margin', but the three figures are shares of the summed profit and sum to a hundred. The reading is the same either way: value is captured moving up the chain, and the farmer keeps the least.

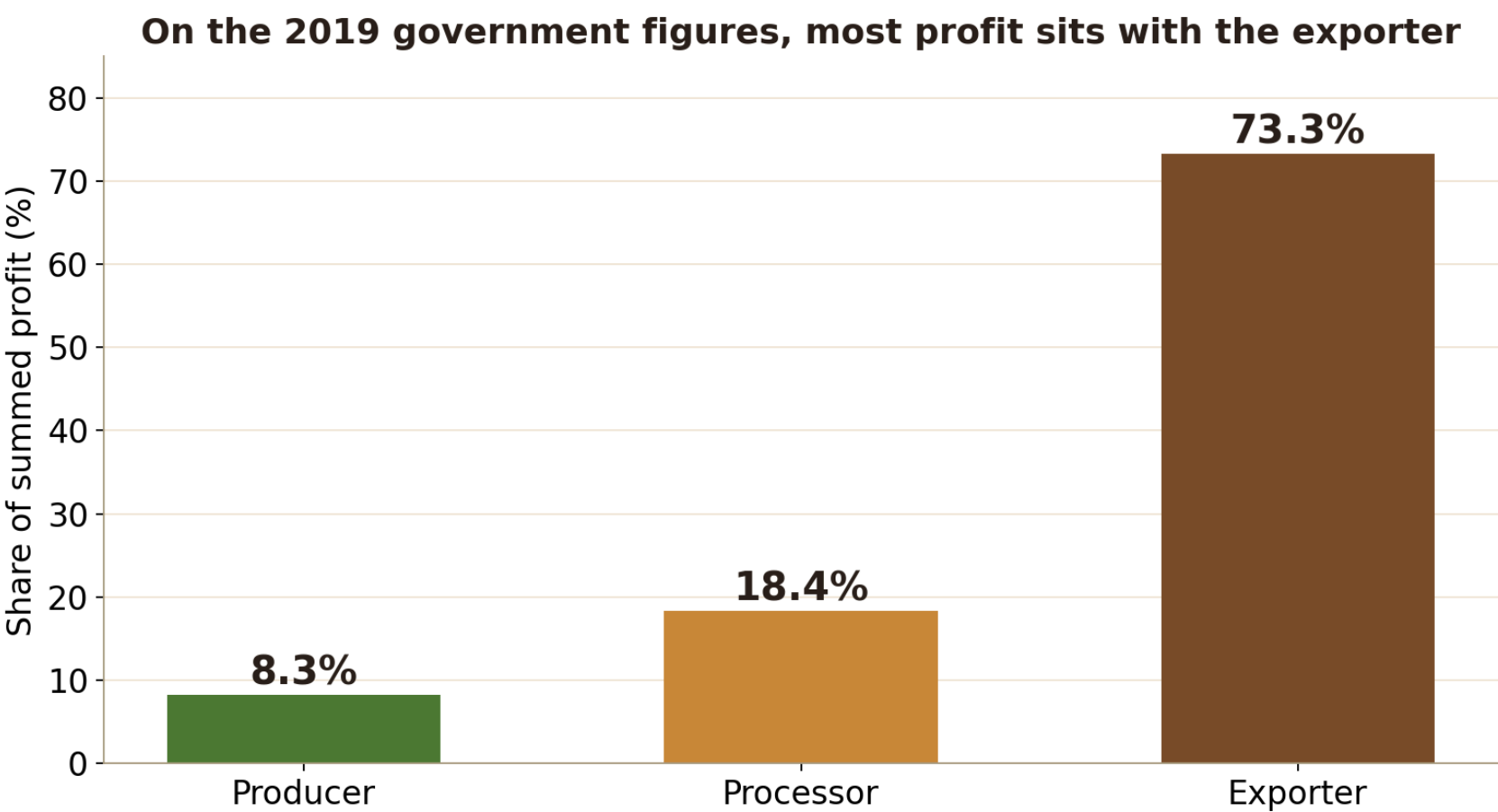
8 / 18 / 73

the producer, processor and
exporter shares of chain profit
(%)

~36% / ~58%

high-quality flour's value-
added and profit share,
the highest studied

² MOTI, Value-Chain Analysis of the Cassava Sector (2019), Table 16, titled "Distribution of profit along the gari value chain." Per metric ton, 2019 nominal cedi values. The figures 8.3, 18.4 and 73.3 are each actor's share of the summed profit (they sum to 100), but the producer column is MOTI's per-acre crop budget (Table 14) and the processor column a 1.5-tonne gari batch (Table 15), so the shares show direction only, although the source's own row is mislabelled "profit margin".



Shares of the three reported profits, which use mixed units (an acre, a 1.5-tonne batch, a tonne): read the direction, not the decimal.

Source: MoTI/WACOMP (2019), Table 16

FIGURE 2 How the gari chain's profit is split between the three actors.

TABLE 2

Profit at three stages of the gari chain, as reported by MoTI/WACOMP (2019) on mixed units (per acre, per 1.5-tonne batch, per tonne).

STAGE IN THE CHAIN	COST PRICE (GH¢)	SELLING PRICE (GH¢)	PROFIT (GH¢)	SHARE OF CHAIN PROFIT (%)
Producer (fresh roots)	1,408	2,024	616	8.3
Processor (gari)	3,128	4,500	1,372	18.4
Exporter	9,015	14,466	5,451	73.3

Source: Ministry of Trade and Industry / WACOMP (2019), Table 16, titled 'Distribution of profit along the gari value chain'; 2019 nominal cedi values. The final column is each actor's share of the summed profit (the three sum to 100); the columns mix units, so the shares show direction only.

The product mix tells the same story from another angle: high-quality cassava flour generated the highest gross value added, 36 percent, and the highest profit, 58 percent, of any

cassava product studied in southern Ghana, far above the raw root.³ The wider chain is not small in absolute terms, one regional analysis put total value addition across it at roughly two billion cedis at 2016 prices, but that value is unevenly split and thinnest at the farm.⁴ The lesson for

anyone entering the sector is to position as far up this chain as they can fund, and for anyone already farming, to find a way to share in the processing profit rather than selling roots at the bottom of it.

④ 4. The missing middle ④

The reason the farmer stays at the bottom of the ladder is that the middle of the chain is missing. Only a small share of Ghana's cassava, about a million tonnes of roughly 22 million on a 2023 Ministry of Food and Agriculture estimate, reaches industry, and about 12.5 percent of the crop is lost outright after harvest, 29 percent once discounted roots are counted, because there is no organised layer to bulk, store and grade a perishable root that spoils within two to three

days of leaving the ground.⁵ Cold storage at about 3 to 10 degrees slows that clock, but it is almost nowhere in the chain.⁶ The crop is worth several times more downstream than the farmer is paid at the gate, with the rural wholesale price alone averaging about GH¢5,045 a tonne in 2024; that value simply is not reaching the farmer, who sells under pressure to move a crop that rots within days.⁷



³ I. Manu, "Analysis of the Cassava Value Chains and Economic Implications on Actors in Southern Ghana" (PhD diss., University of Ghana, 2017). Field survey (2016) across the Volta, Eastern and Central regions found high-quality cassava flour carried the highest value-added share (about 36 percent) and profit share (about 58 percent) of the products studied. Figures as stated in the abstract, <http://ugspace.ug.edu.gh/handle/123456789/23157>.

⁴ Ulrich Kleih et al., Cassava Value Chain Analysis in Brong Ahafo, Ghana (draft; Chatham: Natural Resources Institute / GASIP-MoFA, 2016). Total value addition across the chain estimated at about two billion cedis at May 2016 prices, with commercial farms far more profitable than hired-labour smallholders. 2016 cedi values.

⁵ "Ghana Can Rake in More Revenue from Cassava to Transform Economy - MoFA," GhanaWeb, 2023, <https://www.ghanaweb.com/GhanaHomePage/business/Ghana-can-rake-in-more-revenue-from-cassava-to-transform-economy-MoFA-1867637>, quoting George Prah, Directorate of Crop Services, MoFA: industry used about one million tonnes of about 22 million tonnes produced. "Ghana Produces 8 Percent of World Cassava but Exports Little," News Ghana, March 16, 2026, citing FAO, GEPA, CSIR and WACOMP. Reports that only about 10 percent of output reaches industrial-scale processing and post-harvest losses of up to 50 percent. The Guinness Ghana Breweries requirement (100,000 MT/yr of high-quality cassava flour, 28,000 MT from its sole domestic supplier, Ayensu Starch Company) is from Ministry of Trade and Industry, A Value-Chain Analysis of the Cassava Sector in Ghana (2019), section 2.3, whose Table 6 puts total national demand for high-quality cassava flour at 11,280 MT. Trade press.

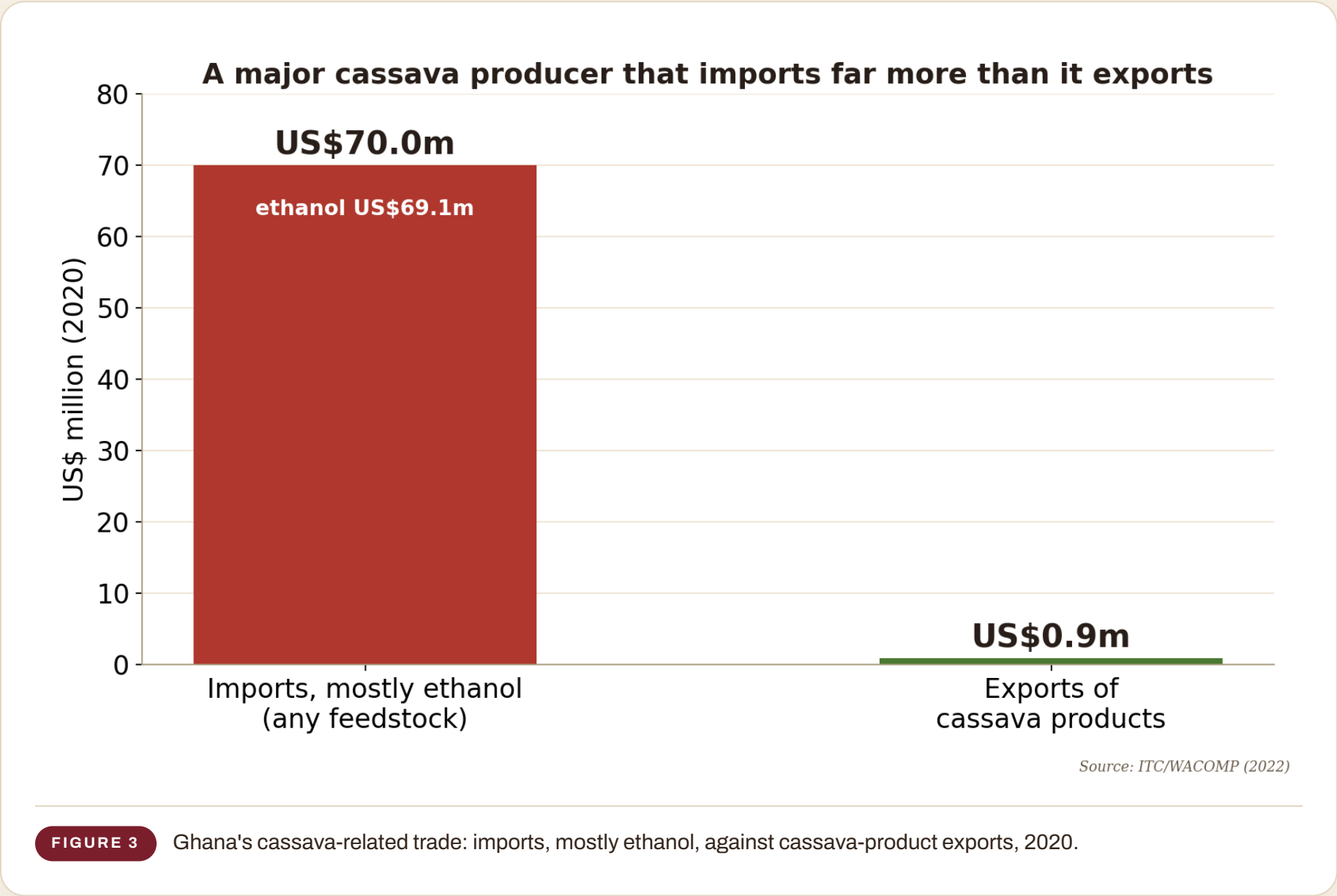
⁶ Mpoko Bokanga, "Cassava: Post-Harvest Operations," in INPhO Post-Harvest Compendium (Rome: FAO, 1999), https://www.fao.org/fileadmin/user_upload/inpho/docs/Post_Harvest_Compendium_-_Cassava.pdf. Fresh cassava roots typically deteriorate within two to three days of harvest; cold storage below 4 degrees Celsius slows internal discoloration. Global technical reference, not Ghana-specific.

⁷ Selina Wamucii, "Cassava Price in Ghana," accessed July 29, 2026; corroborated by Tridge market data. Retail cassava quoted at roughly GH¢20 to GH¢25 per kilogram in 2026. Commercial-aggregator estimates with undisclosed methodology; treated as indicative.

The clearest proof that the middle is missing is the trade balance. Ghana is one of the world's largest cassava producers, ranked fourth globally in one recent profile, yet in 2020 it imported almost seventy million dollars of cassava products, nearly all of it ethanol, while exporting under one million dollars' worth. Figure 3 shows the mirror.



US\$70m vs US\$1m cassava-product imports against exports, 2020



Behind that mirror is a set of quantified, unmet openings. The same regional profile put Ghana's internal demand deficit at more than ninety-six thousand tonnes a year for high-quality cassava

flour and more than eighty-five thousand tonnes for starch, about ten times the national analysis's 2019 estimates of under ten thousand tonnes each, and more than two hundred million litres for

ethanol on this 2022 profile, well above the roughly eighty million litres in the 2019 national value-chain analysis (MoTI/WACOMP), the range itself a sign of how thinly this demand is measured.⁸ A single buyer shows the gap, if loosely: in 2019 the national value-chain analysis reported that Guinness Ghana Breweries needed about a hundred thousand tonnes of cassava

flour a year, with its sole domestic supplier covering under a third, although the same report put total national demand for high-quality flour at only about eleven thousand tonnes, so the brewer's figure is doubtful. Every one of those numbers is a factory that could be built, a supply contract that could be signed, and a margin that is currently leaving the country.

~100,000 t/yr

cassava flour one brewer needs; domestic supply is under a third

GH¢10/kg

the 2025 minimum guaranteed farmgate price for gari

5. Who holds the power

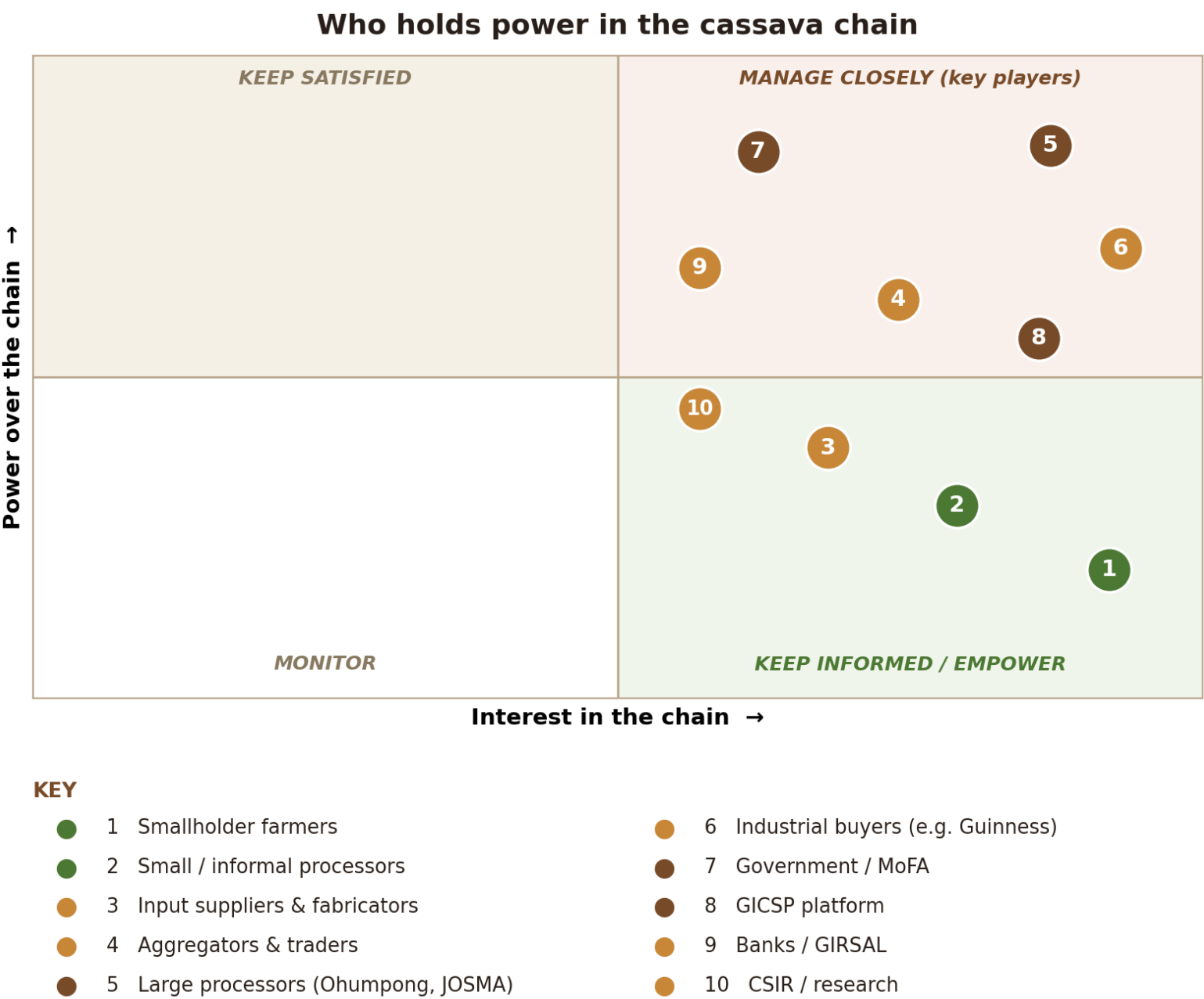
A value chain is also a map of power, and in cassava the power is lopsided. Fieldwork across the southern chain found a captive-market structure: farmers and small processors have little bargaining power and take the price on offer, while a handful of large processors and buyers

hold concentrated market power and set the terms.⁹ Figure 4 places the main actors by how much power they hold over the chain against how much interest they have in it, and Table 3 turns that into an action list.



⁸ International Trade Centre, West Africa Competitiveness Programme: Cassava Value Chain - Regional Investment Profile Summary (Geneva: ITC/EU/ECOWAS, 2022), Ghana country profile. 2020 cassava-product imports US\$69.99 million (mostly ethanol, US\$69.14 million) against exports of US\$0.947 million; internal demand deficits exceeding 96,000 t/yr for high-quality cassava flour, 85,000 t/yr for starch and 213 million litres/yr for ethanol; Ghana ranked fourth globally in production (2019).

⁹ Manu, "Analysis of the Cassava Value Chains" (2017). The study characterises a captive-market governance structure in which farmers and small-scale processors have low bargaining power while large-scale processors hold concentrated market power.



Source: playbook analysis; MoTI (2019), Manu (2017), GCIPP

FIGURE 4 Stakeholder power and interest in the cassava chain.

TABLE 3 The main actors, their power, and the opening each represents.

ACTOR	ROLE IN THE CHAIN	POWER	THE OPENING
Smallholder farmers	Grow the roots; over 70% of Ghana's farmers grow cassava	Low, captive	Aggregate into offtake-backed groups to win a price
Aggregators & traders	Bulk, grade and move roots to processors	High and rising	Formalise the scarce middle; the clearest under-built business
Processors	Turn roots into gari, flour, starch, chips	High, in few hands	Mid-scale entry tied to a named buyer

ACTOR	ROLE IN THE CHAIN	POWER	THE OPENING
Industrial buyers	Pull demand (breweries, mills, feed)	High	Secure supply through contracts rather than spot markets
Government & GICSP platform	Policy and standards (state); multi-actor coordination (GICSP)	High	Structured markets and finance that reach the farm
Banks / GIRSAL	Finance the chain	High	Guarantee aggregated, contracted supply

Source: *playbook analysis, drawing on MoTI (2019), Manu (2017) and the GCIPP programme record.*



Under the AGRA-funded cassava industrialisation programme, a small number of named processors held the supply contracts that tie farmers into the chain, with Amantin Agro Processing, Ohumpong Investments and JOSMA Agro-Industries each holding dozens, and in one case more than a hundred and fifty, smallholder agreements.¹⁰ On the other side, the Ghana Industrial Cassava Stakeholders

Platform, reported in 2020 as convening farmers, processors, government, fabricators and buyers together, is the natural place to push for the structured markets that would rebalance the chain.¹¹ The strategic point is simple: a lone farmer has no power, but an aggregated, contracted group of farmers with a guaranteed buyer does, and building that group is the single most powerful move in the chain.

The grid is worth reading for what is missing as much as for what is there. The top-left corner, the actors with power over the chain but little interest in it, is empty: nobody with real market power is sitting this chain out and blocking it. That is the encouraging part of the map. No powerful gatekeeper holds the cassava chain shut, as happens in some commodities; it is simply unorganised, and an unorganised chain is a far easier one to enter than a captured one.

¹⁰ Agri-Impact Group, "Ghana Cassava Industrialisation and Partnership Project (GCIPP)" (completed), accessed July 29, 2026. An AGRA-funded consortium reporting supply/contract-farming agreements held by named processors, including Amantin Agro Processing (153), Ohumpong Investments (79) and JOSMA Agro-Industries (46); figures as reported by the implementer.

¹¹ "Stakeholders Empowered to Boost Cassava Value Chain," News Ghana, August 4, 2020. The Ghana Industrial Cassava Stakeholders Platform (GICSP) convenes farmers, processors, government institutions, fabricators, input suppliers, buyers, researchers and transporters.

Table 3 names the six actors whose decisions move the chain; the fuller register behind them, every distinct actor from the stem supplier to the

exporter and the institutions around them, is set out in Table 4. It is the map an entrant uses to find where they fit and whom they must work with.



TABLE 4 The full actor register of the cassava chain, and each actor's leverage or constraint.

ACTOR	WHAT THEY DO IN THE CHAIN	THEIR LEVERAGE OR CONSTRAINT
Input suppliers and agro-dealers	Sell fertiliser, agrochemicals and tools; fabricate equipment	Thin reach to smallholders; the fertiliser-balance gap sits here (Pillar 4)
Nursery and planting-material operators	Multiply and sell clean cuttings	Barely exists as a market; the highest-leverage missing business (Pillar 1)
Smallholder farmers	Grow most of the crop; over seven in ten Ghanaian farmers grow some cassava, mostly on under two hectares	Price-takers with no aggregation; low power, high number
Nucleus and commercial farms	Larger, sometimes processor-linked growers	Can anchor supply for a plant, but still few
Aggregators and traders	Bulk, grade and move roots to processors	The scarce, under-built middle; rising power and the clearest opening
Transporters	Haul a perishable root against the clock	The largest single cost in moving fresh roots
Cottage gari processors (women-led)	Make the country's proven cassava product	Informal and unbranded; they leave the branded premium to imports (Pillar 2)
Flour and starch SMEs	Mid-scale processing into flour and starch	The missing middle; gated by certification and a steady root supply
Industrial plants (starch, ethanol)	Large-scale conversion	Run below capacity for want of roots or a buyer; the stranded-asset risk
Wholesalers and retailers	Carry product to the consumer	Thin margins; dried products keep and earn more
Industrial and institutional buyers	Pull demand: breweries, mills, schools, prisons	High power; contracts, rather than spot markets, are the way in
Research, standards and coordination	CSIR breeding, GSA standards, extension, the GICSP platform	Sets the varieties, specs and convening table; the lever for structured markets
Finance	Banks, GIRSAL guarantees and the OVCF	Rarely reaches the individual smallholder; guarantees need aggregated, contracted supply

Source: actors compiled from Ministry of Trade and Industry / WACOMP (2019) and the chain map; each actor's role and leverage are this playbook's reading. Where market power concentrates is set out in Figure 4 and Table 3.

6. Where the value can be captured

Put the chain, the profit split, the missing middle and the power map together and the openings line up in a clear order. Table 5 sets them out.

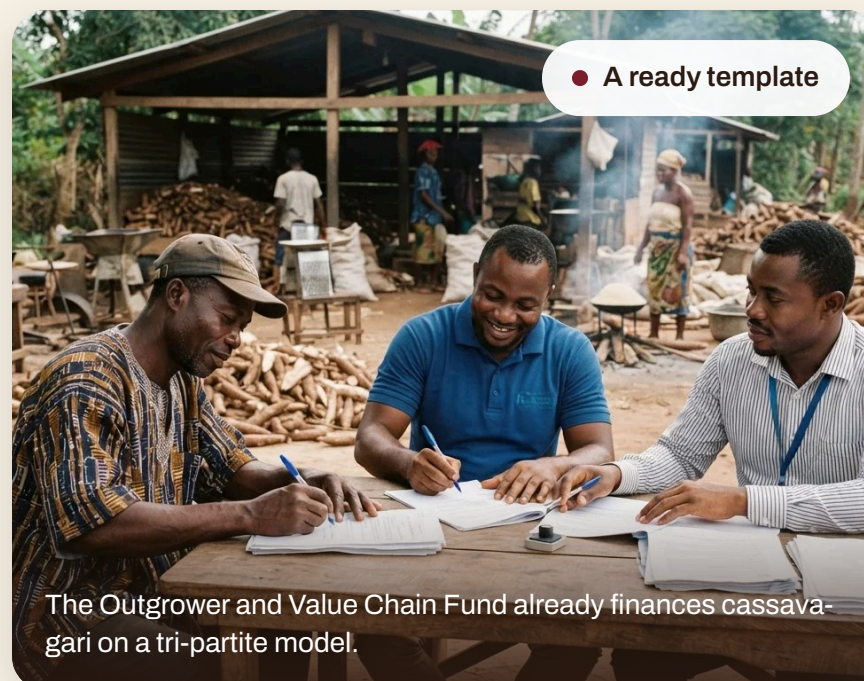
TABLE 5 Ranked value-capture openings in the cassava chain.

OPENING	THE GAP IT FILLS	WHAT KILLS IT	BEST SUITED TO
Aggregation & storage	About 12.5 percent lost outright after harvest, 29 percent with discounted roots and roots spoil in 2-3 days; no organised middle exists	Paying a price premium instead of selling reliability, inputs and transport	Traders, cooperatives, SMEs
Mid-scale processing	Unmet demand estimated at 10,000 to 96,000 t/yr for flour and 9,000 to 85,000 t/yr for starch; one brewer reported short of flour in 2019	Building the plant before signing the buyer; for flour and chips the constraint is the market	Entrepreneurs, investors
Certification as the product	Every quality buyer (supermarkets, institutions, exporters, industry) requires it; a gap flagged in all six clusters	Choosing a product whose standard does not exist; gari and edible cassava flour both have Ghana standards	Processors, SMEs
Convert at the farm	Beats the 2-3 day clock and cuts the weight that must be hauled; a starch plant that buys chips has bought itself out of the clock	Drying before a buyer for the dried form is contracted	Farmer groups, aggregators
Contract farming	Farmers are unbankable and side-sell; industrial buyers cannot rely on supply	Buying loyalty with a high price instead of embedded services, inputs, transport and cash on delivery	Processors, OVCF, GIRSAL
Ethanol import substitution	About US\$69m of ethanol imported in 2020 against an estimated 80m to 213m-litre annual deficit	Underestimating the roots constraint; for ethanol, roots really are the bottleneck	Large investors

Source: playbook synthesis from ITC/WACOMP (2022), MoTI/WACOMP (2019) and the live-search findings.



Two structures already exist to build around. The Outgrower and Value Chain Fund runs a tri-partite model, an outgrower association, a technical operator and a participating bank, and cassava-gari is one of the value chains it finances, which is a ready template for anyone assembling contracted supply.¹² And the state has put a floor under the price: a minimum guaranteed price for gari of GH¢340 per 34-kilogram bag (about ten cedis a kilo), offered by the National Food Buffer Stock Company from September 2025, gives a processor and a farmer group a number to plan around.¹³ Independent fieldwork in the Ashanti and Volta regions reads the growth of off-farm cassava processing and trading as an early, local agricultural transformation already under way, which is exactly the middle of the chain beginning to fill in.¹⁴ The opportunity is to accelerate it. Poku, Birner and Gupta (2018) compared a private and a public cassava outgrower scheme: the private firm paid below the spot price yet kept its growers and lifted their yields, while the state



8.40 vs 5.62 t/acre

contract against non-contract yield in the private scheme

deliberately rather than wait for it.

One Ghanaian study of two outgrower schemes suggests that services and enforcement matter more than price in keeping contracted growers.

scheme matched the market price and still lost its farmers to side-selling. Table 6 shows why, and it is the single most useful lesson for anyone designing an outgrower model.



¹² Ministry of Food and Agriculture, "The Outgrower and Value Chain Fund (OVCF)," accessed July 29, 2026. A KfW-financed tri-partite model (outgrower associations, a technical operator and a participating bank); cassava-gari is one of eight value chains financed.

¹³ "Government Announces New Farmgate Prices for Maize, Rice and Gari," Graphic Online, September 29, 2025. A minimum guaranteed farmgate price for gari of GH¢340 per 34kg bag (about GH¢10 per kilogram); a policy floor, not an average market price.

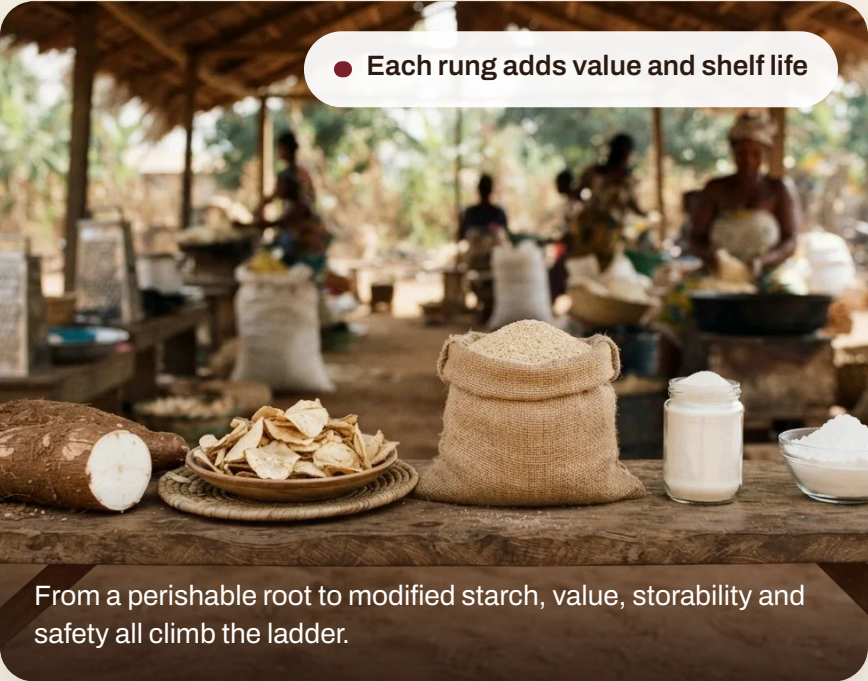
¹⁴ Martin Andersson et al., "A Local-Level Agricultural Transformation in the Making? The Case of the Cassava Industry in the Ashanti and Volta Regions of Ghana," Oxford Development Studies 52, no. 3 (2024): 310-24, <https://doi.org/10.1080/13600818.2024.2418002>. Based on 109 interviews; cassava is grown as an income crop and its growing off-farm processing and trading activity is read as an early sign of local agricultural transformation.

TABLE 6 Two cassava outgrower schemes, and why the low-price one held its growers.

THE SCHEME	THE PRICE IT PAID	CONTRACT VS NON-CONTRACT YIELD	HELD ITS GROWERS?	WHY IT WORKED, OR DID NOT
Private firm	GH¢120, below the GH¢150 spot price	8.40 against 5.62 tonnes an acre, significant at the 1% level	Yes	It embedded inputs, technical assistance and transport and enforced the contract, so the below-market price was outweighed by the services and the reliability
State scheme	GH¢220, level with the GH¢222 spot price	5.20 against 5.72 tonnes an acre, not a significant difference	No	It matched the market but embedded nothing, and set a 15 percent starch specification its growers could not reliably meet, so they had no reason to stay and side-sold

Source: Poku, Birner and Gupta (2018), a comparative study of one private and one public cassava outgrower scheme in Ghana. Yields per acre; prices as reported. In this comparison, embedded services and enforcement kept growers where a market-level price did not.

7. Processing and value addition: where the value is added

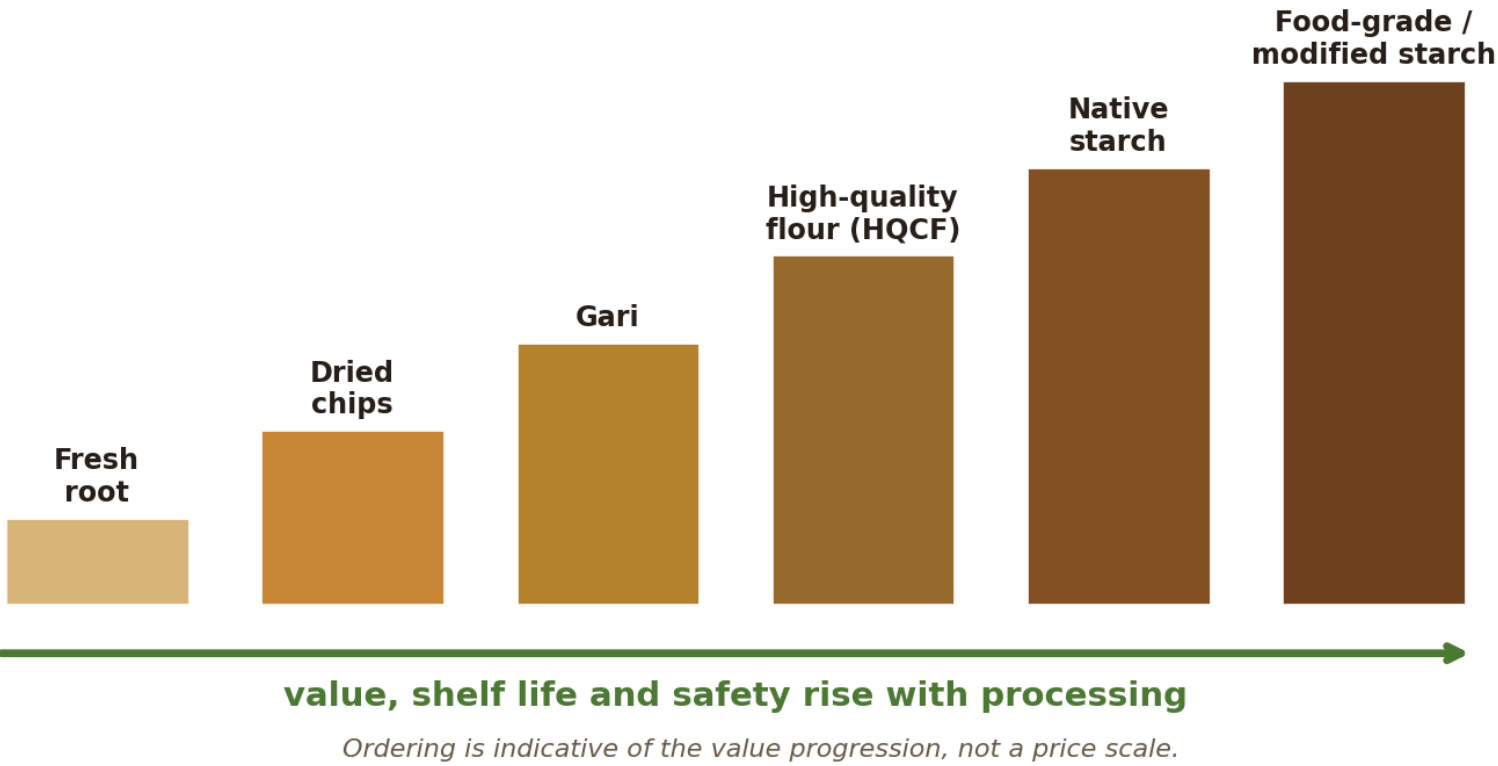


Every step of processing does three things at once: it adds value, it adds shelf life, and it makes the crop safer. A fresh root is cheap, spoils in days and carries unsafe cyanide; the same root dried into chips, grated and roasted into gari, milled into high-quality flour or extracted into starch becomes steadily more valuable, more storable and safer to eat. The highest rung, food-grade and modified starch, is also where global demand is largest and where Ghana has built the least.¹⁵



¹⁵ Alfons van Duijvenbode, Cassava Sector Export Marketing Plan - Ghana, West Africa Competitiveness Programme (Accra: UNIDO/WACOMP, 2021). The plan identifies food-grade over industrial-grade starch as Ghana's clearest opening and notes Ghana's limited penetration of the highest-value processed segments.

The cassava value ladder: processing adds worth, shelf life and safety



Source: WACOMP (2021); IITA (2012)

FIGURE 5 The cassava value ladder.

TABLE 7 The cassava product ladder, and where the opening is on each rung.

PRODUCT	WHAT IT IS AND WHO BUYS	WHAT IT NEEDS	THE OPENING
Fresh root	Home and local food; cheapest and most perishable	Nothing beyond harvest	None; the crowded floor of the ladder
Dried chips	Raw material for feed, starch and ethanol; storable	Drying, low cyanide	Dried intermediates that buy time against the clock
Gari	Mass-market staple, urban convenience, regional export	Grating, fermentation, roasting; moisture at or below 12%	Consistent, branded, graded gari
High-quality flour (HQCF)	Bakery and food-manufacturing wheat substitute	Fast processing, fine milling, low moisture	Reliable HQCF supply to a named bakery
Native starch	Food, paper, textile and pharmaceutical industry	Extraction plant and clean, steady supply	Starch built against secured offtake
Food-grade / modified starch	The highest-value segment, with more demand volume than industrial starch	Advanced processing, standards and scale	The prize Ghana has barely touched

Sources: van Duijvenbode / WACOMP (2021); IITA (2012); Ghana Export Promotion Authority.

Gari: the product that already works

Gari is the most commercialized cassava product in Ghana and the proof that value addition sells. It is made almost entirely by small-scale and informal processors, who make up about 40 percent of the country's food processing industry, the tier where cassava flour and gari are produced.¹⁶



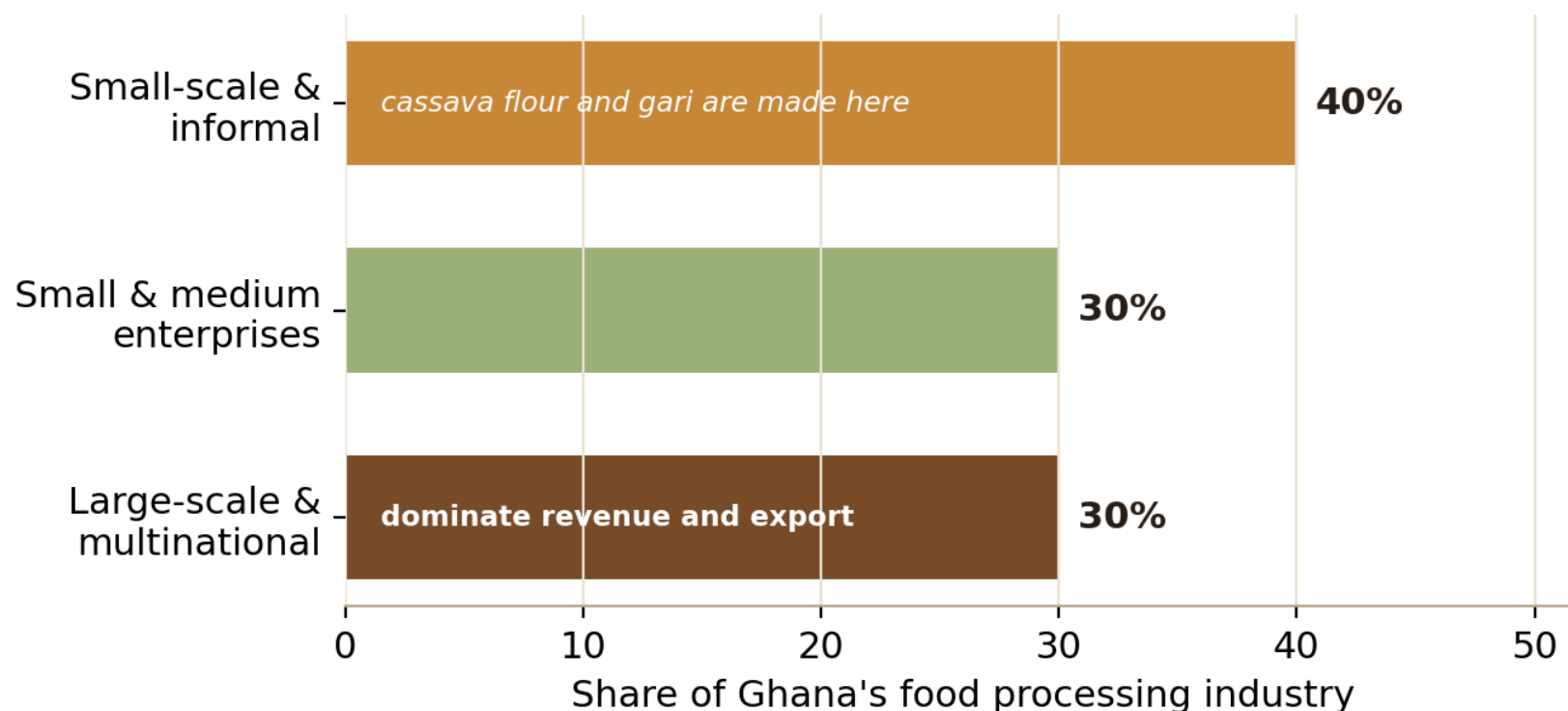
~40% the small-scale, informal share of the food-processing industry

45 min vs 4-5 hrs mechanized against hand processing of one tricycle-load



¹⁶ United States Department of Agriculture, Foreign Agricultural Service, Ghana: Food Processing Ingredients Annual 2025, GAIN Report GH2025-0007 (Accra: USDA FAS, April 2, 2025). Three-tier structure: small-scale and informal 40 percent, SMEs 30 percent, large-scale 30 percent; food-processing-ingredient imports US\$1.24 billion in 2024, up 44 percent.

Ghana's food processing is mostly small-scale and informal



Source: USDA FAS (2025)

FIGURE 6 Ghana's three-tier food processing industry.

What turns cassava into gari is a fixed sequence, peeling, washing, grating, fermenting, pressing, sifting, roasting and grading, and it is that sequence, above all the fermentation and roasting, that also drives the cyanide out (Pillar 3). Quality is measurable: good-quality gari holds moisture at or below 12 percent and total acidity between 0.6 and 1.0 percent, the accepted processing specifications,¹⁷ and Ghana maintains its own gari standard alongside them.¹⁸

The gap is consistency and scale. One Ashanti processor was still hand-processing a single tricycle-load of cassava over four to five hours with firewood, work that mechanised equipment could do in about forty-five minutes.¹⁹ That is the whole opportunity in miniature: the product sells, the standard is known, and the constraint is simply better, faster, more consistent processing, which is also what unlocks the branded-gari premium that imports currently capture (Pillar 2).



¹⁷ A. B. Abass, N. T. Dziedzoave, B. E. Alenkhe and B. D. James, Quality Management Manual for the Production of Gari (Ibadan: International Institute of Tropical Agriculture, 2012).

¹⁸ Ghana Standards Authority cassava-product standards, as listed in the GSA Catalogue of Ghana Standards (2019): GS 237:2017 (gari), GS 762:2008 (edible cassava flour), GS 676:2004 and GS 584:2003 (cassava starch), GS 1057:2013 (composite flour); full texts are sold by the Authority. On buyer requirements for food-grade starch exports, van Duijvenbode, Cassava Sector Export Marketing Plan - Ghana (UNIDO/WACOMP, 2021), which sets out the parameters importers expect suppliers to meet.

¹⁹ "Building Africa's Next Billion-Dollar Food Chain: How Progal Agro Processing Ltd Is Empowering Farmers," CediRates, 2025.

— Starch and flour: the value Ghana leaves on the table

Above gari sit the industrial products, and this is where the money and the neglect both concentrate. Global demand for cassava starch runs to over US\$1.7 billion in imports and is still growing, yet Ghana does not rank as a significant supplier to any of the leading starch markets, and the sector's own export plan identifies the clearest opening as food-grade rather than industrial-grade starch, which carries far more volume of demand and which Ghana has barely entered.²⁰ Only a small share of Ghana's cassava, about a million tonnes of roughly 22 million on a 2023 Ministry of Food and Agriculture estimate, reaches industrial-scale processing at all.²¹

Flour is the nearer-term play. High-quality cassava flour already goes into bakery products at 10 to 35 percent inclusion, and a cross-sector effort has worked for years on a composite-flour policy, but Ghana still has no mandatory blending rule, although the Feed Ghana Programme plans to finalise a high-quality cassava flour policy targeting 5 to 10 percent substitution of wheat flour in bakery products.²² So the demand for high-quality flour is real but policy-optional, which means it has to be won bakery by bakery on price and reliability, since regulation will not hand it over. Ethanol is the third industrial route: Ghana imports tens of millions of litres a year and already has its first cassava ethanol distillery running, so the substitution logic is sound but the capacity is thin.²³

US\$1.7bn

global cassava starch imports, still growing



²⁰ van Duijvenbode, Cassava Sector Export Marketing Plan - Ghana (2021). Global cassava starch imports exceed US\$1.7 billion (about US\$1,763 million); Ghana does not rank as a significant supplier to the leading cassava starch markets.

²¹ Ghana Export Promotion Authority, "Cassava Starch," Buyer Portal, accessed July 29, 2026; on the share of the crop reaching industry, about one million of about 22 million tonnes (MoFA, 2023), see the note on the missing middle. The most recent confirmed GEPA cassava-starch export value dates to 2018 (about US\$1 million, mostly to the USA); no 2024-2026 figure was located.

²² On high-quality cassava flour at 10 to 35 percent bakery inclusion and the Cassava: Adding Value for Africa (CAVA) programme, Commonwealth Scholarship Commission, "Cassava: Adding Value for Africa," 2013, and FAO Family Farming Knowledge Platform materials; on the absence of a mandatory composite-flour blending policy in Ghana as against Nigeria's move toward a 20 percent mandate, MoFA, Feed Ghana Programme (2025), which plans to finalise a high-quality cassava flour policy targeting 5 to 10 percent wheat substitution in bakery products; Nigeria's inclusion policy should be cited to a named Federal Government source.

²³ On Ghana's first cassava ethanol distillery, Caltech Ventures Ltd, company website (Hodzo, Volta Region), accessed September 2026, <https://caltechventures.com/>; "Ghana's First Ethanol Plant to Begin Commercial Production," Biofuels International, <https://biofuels-news.com/news/ghanas-first-ethanol-plant-to-begin-commercial-production-in-march/>; and Mongabay, "Caltech Ventures to Produce Ethanol from Cassava in Ghana," October 2007. Ghana imports on the order of tens of millions of litres of ethanol a year.

Technology, and the mid-scale opportunity



Between the informal gari yard and the handful of big factories sits very little, and that missing middle is the sector's structural weakness. The equipment to fill it exists and is largely made locally, from graters and presses to mechanical

dryers, but processors consistently favour small, affordable machines, and there is strong latent demand for mechanised services such as peeling rather than outright equipment purchase, which points to an equipment-as-a-service model as much as a factory one.²⁴

New capacity is being built, with cassava flour, gari and starch factories commissioned across Bono East, the Eastern Region, the Volta Region and the north between 2024 and 2026.²⁵ Scale brings its own risk. A multi-million-cedi one-district-one-factory starch plant at Assin South, begun around 2019, never reached production and now stands overgrown, a direct warning that a plant started without secured funding, supply and offtake can become a stranded asset.²⁶

OPPORTUNITY · THE RIGHT-SIZED PROCESSOR

The safest entry is a mid-scale, mechanised, quality-controlled processor built against a real supply base and a named buyer, plus the shared equipment services (peeling, grating, drying) the informal sector will pay for. It matches the missing middle exactly, it phases capital to demand, and it avoids the stranded-asset trap that has claimed the flagship plants.

Quality, standards and the export gate

For anything beyond the local market, quality is the gate. Ghana has a full suite of cassava-

product standards, for gari, edible flour, industrial and food-grade starch, and composite flour, and

²⁴ CediRates, "Building Africa's Next Billion-Dollar Food Chain" (2025). The processor described was hand-processing a tricycle-load of cassava over four to five hours, work estimated at about forty-five minutes with mechanized equipment.

²⁵ Factory build-out 2024-2026: "YARP Foods Launches Cassava Flour Production Facility in Bono East Region," Graphic Online, November 19, 2024; "1D1F: Global Almas Commences Mass Production," Ghanamma.com, April 22, 2026; "Nteso Gets Boost with New Cassava Processing Factory," Citinewsroom, March 2, 2026; and the Juapong Cassava Starch Factory (public-private partnership).

²⁶ "Snakes, Weeds Take Over Multi-Million 1D1F Starch Factory at Kyekyewere, Assin South," ModernGhana, May 2026; "Weeds Take Over Multi-Million 1D1F Starch Factory in Assin South," Ghana Business News, May 11, 2026, <https://www.ghanabusinessnews.com/2026/05/11/weeds-take-over-multi-million-1d1f-starch-factory-in-assin-south/>, which reports construction halted over funding shortfalls and procurement delays.

formal and export buyers increasingly require verified traceability alongside a safe, consistent product.²⁷ Meeting the standard is the difference between selling gari by the cup at the roadside and selling branded, certified gari into a supermarket or an export contract, and it is how a processor captures the value the informal sector cannot. Programmes that pair smallholder supply with quality control, such as the cassava

industrialisation partnership linking tens of thousands of farmers to named processors under a national quality regime, show the model: clean supply, documented quality and a committed buyer.²⁸ A recent removal of import duties on processing equipment and tax incentives for agro-processors add a policy tailwind, including the import-duty waiver on agro-processing machinery announced in July 2025.²⁹



²⁷ Ghana Standards Authority cassava-product standards, GSA Catalogue of Ghana Standards (2019); see note 18.

²⁸ Agri-Impact Group, "Ghana Cassava Industrialisation and Partnership Project (GCIPP)," accessed July 29, 2026: an AGRA-funded consortium linking about 81,000 smallholder cassava farmers to named processors (Ohumpong Investments and JOSMA Agro-Industries) with quality-assurance support and the Ministry of Trade and Industry's national cassava strategy.

²⁹ "Gov't Waives Import Duty on Agri-Processing Machinery," The Business & Financial Times, July 30, 2025, <https://thebftonline.com/2025/07/30/govt-waives-import-duty-on-agri-processing-machinery/>; trade-press reports of the removal of import duties on agricultural and industrial processing equipment and tax incentives for agro-processors, including cassava processors.

⌚ Risks in the value chain ⌚



The captive market

HIGH

WHAT IT IS

Farmers and small processors sell into a market with few buyers and little price information, so they take the price offered rather than one they negotiate.

WHO IT HITS

Smallholders and small processors selling into a market with few buyers and no price information, who take the price offered rather than negotiate it.

HOW TO MANAGE IT

sell as an aggregated group under a forward contract, use market-price information, and process to widen the pool of buyers.



The aggregation gap

HIGH

WHAT IT IS

There is no organised layer to bulk, store and grade roots, so a perishable crop is dumped into a thin local market within days of harvest and much of it is lost.

WHO IT HITS

Every farmer far from a processor and every plant whose roots arrive spoiled or late because no organised bulking and storage layer exists.

HOW TO MANAGE IT

build or contract bulking and short-cycle storage close to farms, and schedule harvest to a processor's demand rather than the calendar.





Side-selling and default

ELEVATED

WHAT IT IS

Contract-farming schemes fail when farmers sell elsewhere for quick cash or buyers renege, so supply stays unreliable and finance stays away.

WHO IT HITS

Every processor or fund designing an outgrower scheme, and every investor underwriting one on a projected purchase price rather than a working service package.

HOW TO MANAGE IT

price contracts fairly and pay on time, and bundle inputs, extension and a guaranteed offtake so the contract is worth keeping on both sides.



The stranded factory

HIGH

WHAT IT IS

Plants built ahead of secured supply and offtake never reach production; the Assin South starch factory is the cautionary case, overgrown and idle.

WHO IT HITS

Investors and district programmes that fund a plant before the roots and the buyer are secured, and the community left with an idle building.

HOW TO MANAGE IT

right-size to contracted supply and a named buyer; start mid-scale and phase capacity; do not build for a surplus that has no market yet.





Erratic raw supply against the clock ELEVATED

WHAT IT IS
Processing depends on getting roots in within days of harvest (Pillar 3); broken supply idles the plant and burns working capital.

WHO IT HITS
Any processor running to a schedule against a perishable crop with no forward supply, whose line then runs below the capacity it was built for.

HOW TO MANAGE IT
site near the farm; contract supply; buffer throughput with dried intermediates such as chips.



Quality and standards failure MEDIUM

WHAT IT IS
Inconsistent moisture, acidity or cyanide fails buyers and closes the export gate, stranding product at the low-value informal end.

WHO IT HITS
Every processor with ambition above the village market, since supermarkets, institutions, exporters and industry all gate entry on a standard.

HOW TO MANAGE IT
adopt the gari and flour standards and HACCP; test and document every batch; work to the published specification.



① Key takeaways ①

- 01 The chain is short and shallow: value climbs steeply from farm to processor to exporter, but almost the whole crop stops at the farm, the thinnest link.
- 02 Value pools at the top of the chain: on the government's own figures the producer earns the least and the exporter by far the most, so position as high up the chain as you can fund.
- 03 The binding constraint is the missing middle, aggregation, storage and reliable processing, rather than the growing of the crop.
- 04 Power sits with a few processors, large buyers and the state; farmers and small processors are price-takers in a captive market, and the fix is to aggregate and contract.
- 05 The openings are concrete and quantified: unmet flour and starch demand, ethanol imports, and brewers that still import flour, all waiting on someone to build the middle.



Practitioner intelligence

STUDENTS

Map a real chain for one product, gari or flour, from a named farm to a named buyer, and price each link. The exercise that teaches most is to find where a tonne of roots gains and loses value, and to ask why the farmer keeps so little of it.

ENTREPRENEURS

The money is in the middle of the chain. The least contested, most needed business is aggregation and storage that gets roots to a processor before they rot; the next is mid-scale processing tied to a buyer you have already signed. Do not start by planting acres.

INVESTORS

Back the middle of the chain and the offtake that de-risks it. The thesis is that Ghana grows the crop and imports the product, so value added at home is import substitution into a captive domestic market. Diligence asks: is there a signed buyer, a working aggregation model, and a storage plan that beats the two-day clock?

ECOSYSTEM ACTORS

The public job is to build the middle the market has not. Resource aggregation and storage infrastructure, make contract-farming vehicles such as OVCF and GIRSAL actually reach cassava groups, and enforce standards so a processor can sell into the industrial and export markets that pay. The outcome to measure is the share of the crop that reaches processing, today about a million of some 22 million tonnes, rising.



Where this connects. The clean, reliable supply this chain needs starts with planting material and yield (Pillar 1); the surplus it must absorb is Pillar 2's; the products that carry the margin are made by the processing set out above; the field decisions behind their dry matter are Pillar 4's; and the finance that lets an aggregator or processor build the missing middle is Pillar 5's. The market intelligence to size these openings and the policy to unlock them are Pillars 7 and 8.





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