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Inventory Valuation and Management in an Agro-Food Manufacturer: A FIFO-Based Case Study of Parakh Foods and Oils Limited

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Abstract

Inventory valuation sits where operations meet finance: the way a firm counts, rotates and values its stock determines the cost of goods sold it reports, the working capital it ties up and the tax it pays. This paper examines how the First-In-First-Out (FIFO) cost-flow assumption is applied and what it reveals at Parakh Foods and Oils Limited (PFOL), a Pune-based manufacturer of maize, gram and pulse-based staples. Using a descriptive single-case design, the study combines monthly stock reports for the Bhandgaon maize plant (June to August 2025), a packing-material consumption report (July 2025) and the company's standalone financial indicators for FY2024 to FY2026. Four research questions address the fit between physical and cost flow, the efficiency of stock movement, the concentration of packing-material cost and the financial capacity to carry inventory. Packing and dispatch stayed within about six per cent of each other in every month. Approximate monthly inventory turnover rose from 4.38 to 5.70 times while days of stock on hand fell from 6.9 to 5.4. Aggregate figures concealed wide differences across product groups, and one reconciliation difference of 261 bags was found in July. A single jumbo-bag category cost about ₹506 per bag against ₹17 to ₹26 for other itemised materials. At company level, operating income fell by 49 per cent between FY2024 and FY2026 while profit after tax rose almost fivefold and interest coverage improved from 2.7 to 99.9 times. The paper concludes that FIFO suits PFOL's perishable product mix and recommends product-level turnover and ageing reports, a formal reconciliation control, packing-cost review and forecast-based production planning.

Keywords: inventory valuation, FIFO, inventory turnover, working capital, Ind AS 2, agro-food manufacturing, India

1. Introduction

1.1 Background and motivation

Inventory is usually the largest operating current asset of a manufacturing firm, and for food processors it is also the asset most exposed to physical decay. Two decisions govern it. The first is an operating decision about how much to hold, where to hold it and which units to issue first. The second is an accounting decision about the cost at which units leave and remain on the balance sheet. The two are linked because a valuation rule is only as reliable as the stock-handling discipline that supports it, and stock-handling choices in turn change the numbers that the valuation rule produces (Kieso et al., 2016; Horngren et al., 2015).

Indian agro-food processors illustrate the linkage well. Their raw materials are seasonal and price-volatile, their finished goods are perishable, and their operating margins are thin because pricing power is limited in a fragmented, price-competitive market. In that setting the valuation policy is not a bookkeeping formality. Under rising input costs, FIFO reports lower cost of goods sold and higher profit than weighted-average costing, whereas under falling costs the effect reverses (Garrison et al., 2020). Management, lenders and tax authorities all read the resulting figures, so consistency and traceability matter as much as the choice of method.

Parakh Foods and Oils Limited (PFOL) offers a useful case. In August 2024 the company sold its edible-oil refining business to Reliance Consumer Products Limited and now operates that facility as a contract manufacturer, while its own revenue comes increasingly from gram flour, yellow-pea flour, pulses and maize products sold under the Samrat, Bigul and Nimraja brands (ICRA Limited, 2026). The realignment shrank the top line but changed the profit and leverage profile sharply, which makes the efficiency of the remaining inventory cycle more important than before.



1.2 Problem statement and research gap

Much of the inventory-valuation literature is based on large listed firms in developed markets, and it concentrates on the effect of the method chosen on reported earnings and taxes. Less attention has been paid to how a mid-sized Indian processor of perishable staples implements a method on the shop floor, and to whether the monthly stock records show the discipline that the policy assumes. This study addresses that gap by reading a FIFO policy against actual plant-level stock movements and against the financial position of the company that operates the plant.

1.3 Objectives and research questions

The study has four objectives: (a) to describe the FIFO-based valuation and stock-handling framework used at PFOL and its financial implications; (b) to examine the inward and outward inventory process that supports FIFO; (c) to analyse monthly stock and packing-material data for evidence of efficiency and control; and (d) to recommend improvements that reduce the risks of stockout, excess stock and obsolescence. These translate into four research questions.

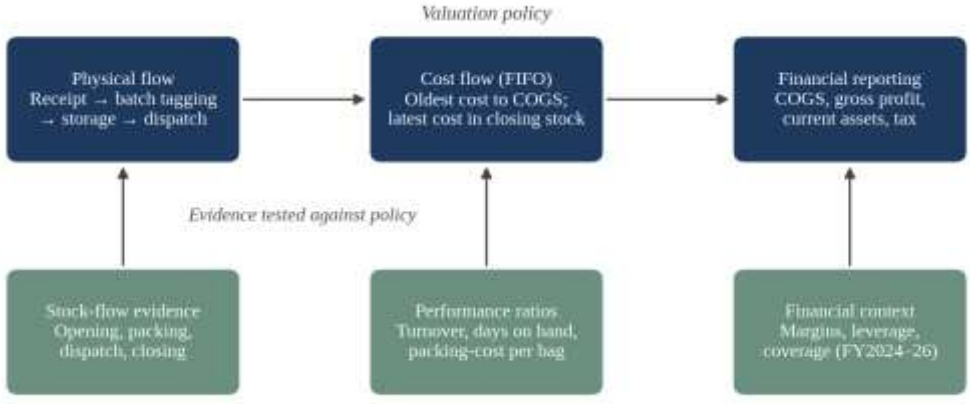
RQ1. How well does the FIFO cost-flow assumption match the physical flow of goods at PFOL, and what are its reporting consequences? *RQ2.* How closely do packing and dispatch track each other, and what do turnover and days-on-hand measures reveal about efficiency over the study period? *RQ3.* Where does packing-material cost concentrate? *RQ4.* How has PFOL's financial profile changed since FY2024, and what does this imply for its capacity to finance inventory?

1.4 Contribution and structure

The paper contributes a transparent, replicable set of ratios that a finance team can compute from routine stock reports, a worked reconciliation test that detects an unexplained difference in the records, and a link between plant-level stock behaviour and corporate financial indicators. Section 2 reviews the literature. Section 3 describes the sector and the company. Section 4 explains the method. Section 5 presents the results, Section 6 discusses them, Section 7 gives recommendations, Section 8 notes limitations and future research, and Section 9 concludes. Figure 1 sets out the conceptual framework that guides the analysis: a valuation policy links physical flow, cost flow and financial reporting, and the empirical evidence in this paper tests that policy at plant and company level.

Figure 1

Conceptual framework of the study



Note. Prepared by the author.

2. Literature Review

2.1 Cost-flow assumptions and financial reporting

Four cost-flow assumptions dominate the accounting literature: FIFO, last-in-first-out (LIFO), weighted-average cost (WAC) and specific identification. FIFO charges the oldest costs to cost of goods sold and leaves the most recent costs in closing stock. LIFO does the opposite. WAC assigns one average cost to all units available, and specific identification tracks the actual cost of each unit (Kieso et al., 2016; Drury, 2018). In a period of rising prices FIFO therefore yields lower cost of goods sold, higher profit and a closing-stock figure close to current replacement cost, while LIFO yields lower taxable profit but an outdated balance-sheet figure (Garrison et al., 2020).

The accounting standard relevant to Indian companies is Ind AS 2, which is converged with IAS 2. It requires inventories to be measured at the lower of cost and net realisable value, permits FIFO or weighted-average cost as cost formulas, requires the same formula for inventories of a similar nature and use, and does not permit LIFO (International



Accounting Standards Board, 2003). Specific identification is reserved for items that are not ordinarily interchangeable. The choice for a food processor handling thousands of homogeneous bags is therefore effectively between FIFO and WAC, and the lower-of-cost-and-net-realisable-value test adds a second consideration: slow-moving stock carried at recent cost is exposed to write-down if selling prices fall.

Empirical work shows that inventory-costing choices are not only reporting devices. Sunder (1973) studied market reactions to accounting changes, including changes in inventory methods, and Biddle (1980) examined the relationship between a firm's inventory-costing method and its inventory policy. The common message is that the method and the underlying stock decisions influence each other.

2.2 Inventory management and firm performance

Classical inventory theory frames the holding decision as a trade-off. The economic order quantity model of Harris (1913), extended by Hadley and Whitin (1963), balances fixed ordering cost against holding cost, and later treatments add safety stock to absorb demand and lead-time uncertainty (Silver et al., 1998; Chase & Jacobs, 2018). Just-in-time approaches reduce holding cost but increase exposure to supply disruption, which is a material concern for firms that buy seasonal agricultural inputs.

Evidence on performance is broadly consistent with the intuition that leaner stock helps profitability up to a point. Koumanakos (2008), using Greek manufacturing firms that included food producers, found that higher inventory levels were associated with lower returns. Deloof (2003) reported that Belgian firms with longer inventory-holding, receivable and payable periods had lower gross operating income. Chen et al. (2005) found that firms with abnormally high inventories experienced weaker subsequent stock returns. Gaur et al. (2005) modelled inventory turnover in retail as a function of gross margin, capital intensity and sales surprise, which cautions against comparing raw turnover across firms with different business models. Kesavan et al. (2010) showed that inventory and gross-margin data contain information that improves sales forecasts, which supports the use of stock records as an input to demand planning.

2.3 Working capital and financing capacity

Inventory days are one of the three components of the operating cycle alongside receivable and payable days (Pandey, 2015). Holding too little stock risks lost sales, while holding too much ties up funds and invites spoilage. A firm with low leverage and strong liquidity can afford a larger safety stock, whereas a highly leveraged firm must economise on stock because each rupee of inventory is financed at a visible cost. This makes the financial profile of the company a relevant background to any plant-level inventory study.

2.4 Systems, controls and the Indian context

Enterprise resource planning (ERP) systems improve inventory control by recording receipts and issues in real time, tagging batches and automating valuation (Moon, 2007). Even so, system records need periodic physical verification, and reconciliation of opening stock, receipts, issues and closing stock is the basic control that makes system data trustworthy. For Indian firms the tax dimension adds a further reason for consistency: goods and services tax is charged on the transaction value of supplies rather than on accounting cost, but the valuation of closing stock affects taxable profit under income-tax law, and a change of method between years invites scrutiny.

2.5 Synthesis

Table 1

Summary of literature and relevance to the present study

Theme	Representative sources	Core insight	Use in this study
Cost-flow methods	Kieso et al. (2016); Garrison et al. (2020)	FIFO gives lower COGS and higher profit when costs rise	Frames RQ1 and the illustrative example
Standards	IASB (2003)	FIFO or WAC allowed; LIFO prohibited; lower of cost and NRV	Justifies FIFO versus WAC comparison
Order and stock theory	Harris (1913); Silver et al. (1998)	Trade-off between ordering and holding cost; safety stock	Interprets stock levels and recommendations



Theme	Representative sources	Core insight	Use in this study
Inventory and performance	Koumanakos (2008); Deloof (2003); Chen et al. (2005)	Excess inventory is linked to weaker returns	Motivates turnover and days-on-hand ratios
Forecast information	Kesavan et al. (2010)	Inventory data improve sales forecasts	Supports forecast-based planning
Systems and control	Moon (2007)	ERP gives real-time records; verification still needed	Supports reconciliation control

Note. IASB = International Accounting Standards Board; NRV = net realisable value; COGS = cost of goods sold.

Three points emerge from this body of work. First, FIFO is the natural accounting counterpart of physical rotation for perishable goods. Second, excess stock carries a measurable performance penalty, so turnover and days-on-hand are meaningful indicators. Third, the reliability of any valuation depends on reconciled records. The remaining gap is applied evidence from a regional Indian processor, which this paper provides.

3. Research Context: Sector and Company

3.1 The Indian edible-oil and food-processing sector

The sector covers oilseed crushing, refining, milling of flour and pulses, packaging and a multi-layered distribution system. Industry estimates value the packaged edible-oil market at about USD 4.4 billion in 2024, growing at roughly 6.8 per cent a year to nearly USD 6.5 billion by 2030 (TechSci Research, 2024), while the wider organised edible-oil market is estimated at about USD 24.8 billion in 2025 and USD 29.1 billion by 2030 (Vyansa Intelligence, 2025). The two figures describe different market boundaries and are not directly comparable. Competition is high, supplier power is significant because of import dependence, and traditional trade still carries most volume in regional markets.

Policy has also been a source of volatility. Import-duty changes on edible oils, including an increase in September 2024 and a reduction of the basic duty on crude oils in May 2025, show how quickly input-cost conditions can move. For any processor, abrupt changes of this kind alter the cost at which stock is purchased and therefore the profit reported under FIFO or WAC. The sector is also moving toward digital inventory tools and tighter traceability as modern trade and quick-commerce channels grow.

3.2 Parakh Foods and Oils Limited

PFOL is headquartered in Pune and shares the Samrat brand, distribution network and sales team with its sister concern, Parakh Agro Industries Limited. Roughly 80 per cent of sales come from Maharashtra, and the distribution network reaches over a million retail outlets (ICRA Limited, 2026). The company is setting up a 400 tonnes-per-day gram-flour unit at Palava at an estimated cost of ₹125 to ₹130 crore, funded from internal accruals, with commissioning expected by December 2027. The plant studied here, at Bhandgaon, processes maize into grit, corn meal and flour, and produces cattle feed as a by-product. It carries more than a dozen stock-keeping units (SKUs) that differ by product and pack size of 25, 40, 45 and 50 kg.

3.3 Financial profile, FY2024 to FY2026

Table 2 reports PFOL's standalone indicators. Operating income fell from ₹2,158.4 crore in FY2024 to ₹1,591.2 crore in FY2025 (down 26.3 per cent) and to ₹1,100.6 crore in FY2026 (down a further 30.8 per cent), a cumulative decline of 49.0 per cent that mainly reflects the divestment. Over the same period profit after tax rose from ₹17.7 crore to ₹83.0 crore, which is 4.7 times the FY2024 level (Figure 2).

Table 2

PFOL standalone key financial indicators, FY2024 to FY2026

Indicator	FY2024	FY2025	FY2026*
Operating income (₹ crore)	2,158.4	1,591.2	1,100.6
Profit after tax (₹ crore)	17.7	69.8	83.0
OPBDIT / operating income (%)	2.1	6.7	10.5

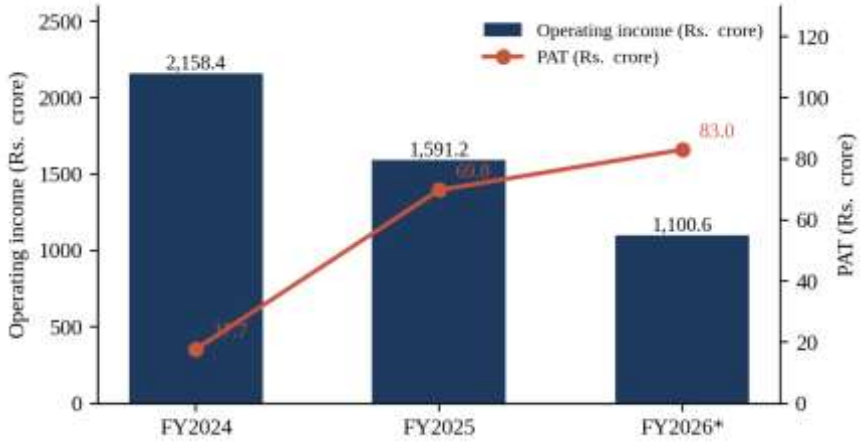


Indicator	FY2024	FY2025	FY2026*
PAT / operating income (%)	0.8	4.4	7.5
Total outside liabilities / tangible net worth (times)	0.8	0.2	0.2
Total debt / OPBDIT (times)	3.7	0.1	0.3
Interest coverage (times)	2.7	12.3	99.9
OPBDIT (₹ crore, derived)	45.3	106.6	115.6
Interest cost (₹ crore, derived)	16.8	8.7	1.2

Note. *FY2026 figures are provisional. Source: ICRA Limited (2026). Derived rows are the author's approximations (OPBDIT = margin × operating income; interest = OPBDIT ÷ coverage) and are sensitive to rounding in the published ratios. OPBDIT = operating profit before depreciation, interest and tax.

Figure 2

Operating income and profit after tax of PFOL, FY2024 to FY2026

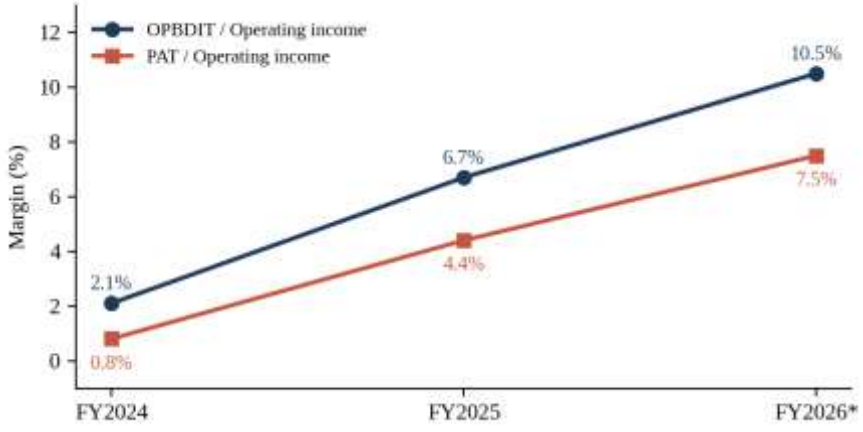


Note. Source: ICRA Limited (2026). *FY2026 is provisional.

Profitability and leverage improved together. The operating margin (OPBDIT to operating income) rose from 2.1 to 10.5 per cent and the PAT margin from 0.8 to 7.5 per cent (Figure 3). Total debt to OPBDIT fell from 3.7 to 0.3 times, outside liabilities to tangible net worth fell from 0.8 to 0.2 times, and interest coverage rose from 2.7 to 99.9 times (Figure 4). The derived rows of Table 2 suggest that the interest burden fell from roughly ₹17 crore to about ₹1 crore, so most of the improvement in coverage comes from lower finance cost rather than from operating profit alone.

Figure 3

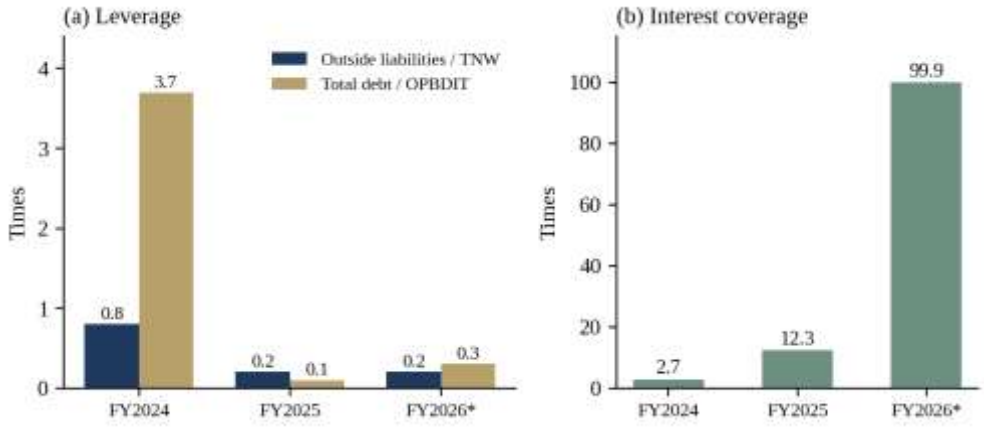
Operating and net profit margins of PFOL, FY2024 to FY2026



Note. Source: ICRA Limited (2026). *FY2026 is provisional.

Figure 4

Leverage and interest coverage of PFOL, FY2024 to FY2026



Note. TNW = tangible net worth. Source: ICRA Limited (2026). *FY2026 is provisional.

ICRA reaffirmed the long-term rating at [ICRA]A (Stable) and the short-term rating at [ICRA]A1 in July 2026, citing the conservative capital structure and strong liquidity, with cash and bank balances of about ₹106.7 crore at March 2026 (provisional) and minimal use of bank limits. The same rating rationale lists commodity price cycles, thin margins from limited value addition, geographic concentration and project-execution risk for the new unit as continuing weaknesses. For the present study the implication is that PFOL can finance stock comfortably, but its margin depends on cost control in a commoditised business, which is where inventory discipline contributes.

4. Research Methodology

4.1 Research design

The study is descriptive and exploratory and uses a single-case design. The unit of analysis is the Bhandgaon maize plant of PFOL for stock-flow analysis and the company as a whole for financial context. A single case allows detailed reading of records against policy, which is the aim here, but it limits statistical generalisation, a point taken up in Section 8.

4.2 Data sources

All data are secondary. Monthly stock reports for June, July and August 2025 give opening stock, packing (stock-in), dispatch (stock-out) and closing stock, in bags, for the Bhandgaon plant. Product-level detail was available for June, and totals were available for July and August. A packing-material consumption report for July 2025 gives bags consumed and total cost for selected categories and a total for all packing materials. Company-level indicators for FY2024 to FY2026 come from the published credit-rating rationale (ICRA Limited, 2026). The records were provided by the company's finance team for academic use. No primary survey or interview data were collected, and no transaction-level, customer-specific or personal data were used.

4.3 Variables and ratios

Table 3 defines the measures. Because the stock records are in bags rather than rupees, bags dispatched stand in for cost of goods sold and the simple mean of opening and closing stock stands in for average inventory. The resulting turnover is therefore a volume-based approximation, appropriate for tracking movement but not a substitute for a cost-based audited ratio.

Table 3

Measures used in the analysis

Measure	Definition	Purpose
Packing–dispatch gap (%)	(Packing − Dispatch) ÷ Packing × 100	Alignment of production and sales
Reconciliation difference	Opening + Packing − Dispatch − Closing	Integrity of stock records
Inventory turnover (times)	Dispatch ÷ [(Opening + Closing) ÷ 2]	Speed of stock cycling



Measure	Definition	Purpose
Days of stock on hand	Days in month ÷ Turnover	Holding period
Packing cost per bag dispatched (₹)	Total packing-material cost ÷ Bags dispatched	Unit cost benchmark
Unit cost of material (₹)	Category cost ÷ Bags consumed	Cost concentration (ABC view)

Note. Prepared by the author.

4.4 Validation, ethics and delimitation

Two arithmetic checks were applied to the records. First, each month's opening stock was matched with the previous month's closing stock. Second, opening stock plus packing minus dispatch was compared with reported closing stock, both at product level for June and at total level for each month. Differences were treated as findings and are reported in Section 5.4 rather than adjusted. All figures are aggregated, the company consented to their use, and numbers that could not be verified publicly are presented as reported by the company. The period (three months) falls within the post-divestment phase of the company, and the results describe a single season.

5. Results and Analysis

5.1 FIFO in practice and its reporting effect (RQ1)

At Bhandgaon, incoming material is quality-checked, recorded against its receipt date and batch, and stored in order of arrival. The oldest available batch is issued or dispatched first and the records are updated. A computerised system time-stamps each batch, and periodic physical audits compare recorded quantities and ages with the warehouse. Physical rotation and cost flow therefore coincide, which is the main virtue of FIFO for perishable goods: the batch that leaves first is also the batch whose cost is recognised first, so the policy can be audited against the physical record.

The reporting effect depends on the direction of input prices. Table 4 uses a simplified example in which a plant holds 1,200 units of packing material and issues 900. In the rising-cost case, batches cost ₹10.00, ₹10.50 and ₹11.00 per unit; in the falling-cost case the order is reversed. FIFO reports cost of goods sold of ₹9,250 against ₹9,414 under WAC when costs rise, so pre-tax profit is about ₹164 higher under FIFO and closing stock is higher by the same amount (Figure 5). When costs fall, FIFO reports cost of goods sold of ₹9,650 against ₹9,488 and profit is about ₹163 lower. The sign of the difference therefore follows the price trend, which is why a valuation method must be applied consistently and not switched according to the cycle.

Table 4

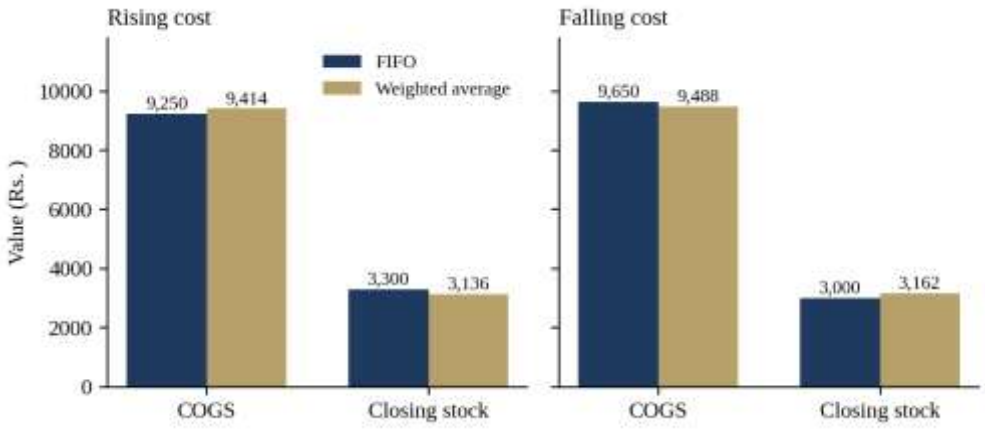
Illustrative comparison of FIFO and weighted-average cost (900 units issued from 1,200 available)

Scenario	Method	COGS (₹)	Closing stock (₹)	Profit effect versus WAC (₹)
Rising cost (10.00, 10.50, 11.00)	FIFO	9,250.00	3,300.00	+164.17
	WAC	9,414.17	3,135.83	—
Falling cost (11.00, 10.50, 10.00)	FIFO	9,650.00	3,000.00	−162.50
	WAC	9,487.50	3,162.50	—

Note. Hypothetical figures; opening batch of 400 units, then 500 and 300 units. WAC cost per unit is ₹10.46 (rising) and ₹10.54 (falling). Profit effect equals WAC COGS minus FIFO COGS.

Figure 5

Cost of goods sold and closing stock under FIFO and weighted-average cost in two price scenarios



Note. Illustrative figures from Table 4.

An additional implication follows from the lower-of-cost-and-net-realisable-value rule in Ind AS 2. Under FIFO the closing stock is carried at the most recent costs, so if selling prices fall faster than costs, slow-moving stock is the first to require a write-down. The quantity of stock left at month-end, and how fast it moves, is therefore a financial risk indicator as well as an operating one, which leads into the stock-flow analysis.

5.2 Product-level stock flow in June 2025 (RQ2)

In June the plant opened with 10,855 bags, packed 40,085, dispatched 42,418 and closed with 8,522. Product-level arithmetic reconciled exactly for all twelve SKUs (Appendix A). Grouping the SKUs by product shows differences that the total conceals (Table 5, Figure 6). Maize grit was packed more than it was sold: packing of 16,436 bags exceeded dispatch of 14,666 by 12 per cent, closing stock rose from 3,200 to 4,970 bags, and monthly turnover was only 3.59 times. Maize flour moved the other way: dispatch of 12,487 bags exceeded packing of 9,180 by 36 per cent, and stock was drawn down from 4,634 to 1,327 bags (a fall of 71 per cent). Corn meal turned fastest at 5.82 times, with dispatch 5.5 per cent above packing.

Table 5

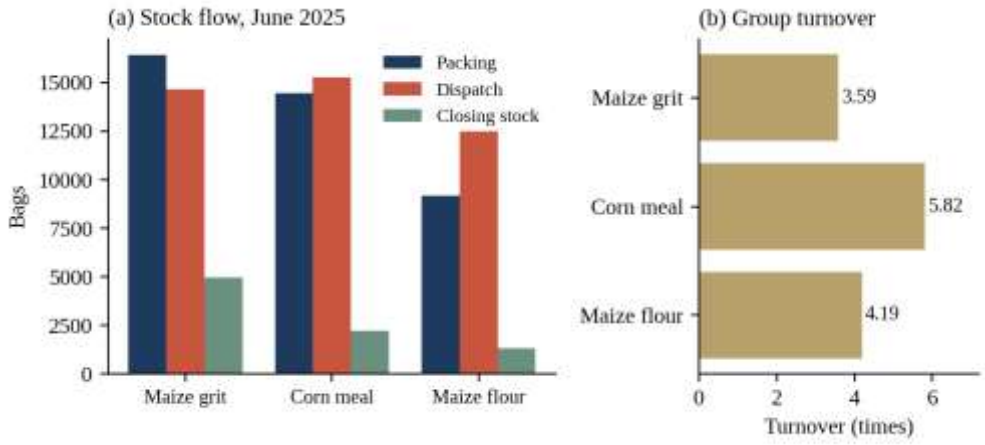
Stock flow by product group, Bhandgaon plant, June 2025 (bags)

Product group	Opening	Packing	Dispatch	Closing	Turnover (times)
Maize grit (4 SKUs)	3,200	16,436	14,666	4,970	3.59
Corn meal (3 SKUs)	3,021	14,469	15,265	2,225	5.82
Maize flour (5 SKUs)	4,634	9,180	12,487	1,327	4.19
Total	**10,855**	**40,085**	**42,418**	**8,522**	**4.38**

Note. Grouped by the author from the SKU-level report in Appendix A. Turnover = Dispatch ÷ average of opening and closing stock.

Figure 6

Stock flow and turnover by product group, June 2025



Note. Computed from Appendix A.

Concentration is also visible within closing stock. Two SKUs, 50 kg maize grit (3,870 bags) and 40 kg corn meal (2,225 bags), accounted for 71.5 per cent of the 8,522 bags held at month-end. Since the plant works under FIFO, the ageing profile of the 50 kg grit stock is the item most worth monitoring, because it combines the largest balance with the slowest-moving group.

5.3 Three-month stock-flow pattern (RQ2)

Table 6 and Figure 7 consolidate the three months. Packing rose by 26.4 per cent from June to July and was flat in August (up 0.3 per cent), so that August packing was 26.7 per cent above June. Dispatch rose by 15.8 per cent in July and 7.7 per cent in August, for a cumulative increase of 24.7 per cent. Dispatch exceeded packing in June (by 5.8 per cent of packing) and August (by 4.1 per cent) and fell short of it in July (by 3.1 per cent), so the gap alternated in sign and never exceeded about six per cent. Closing stock moved from 8,522 to 10,337 and then 8,229 bags. This pattern is consistent with production planned to near-term demand, with stock acting as a buffer that is built in one month and drawn down in the next, rather than with a one-directional accumulation.

Table 6

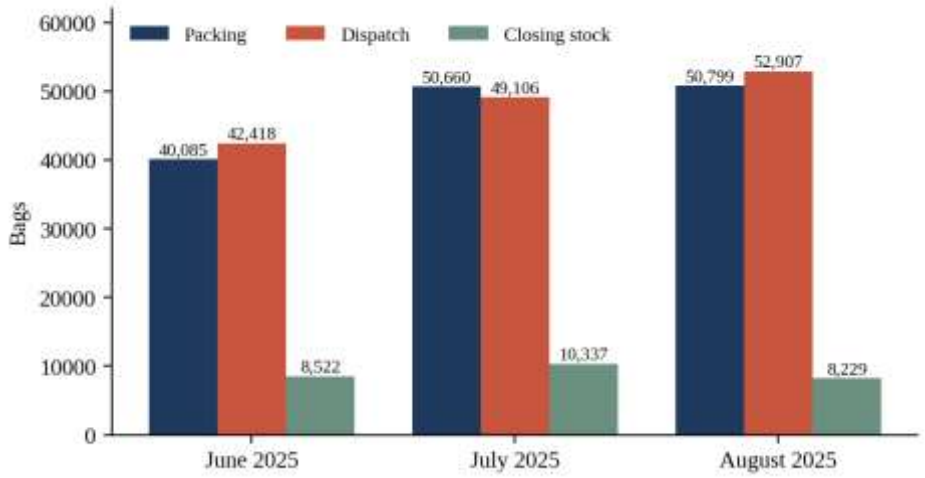
Consolidated stock flow and reconciliation, Bhandgaon plant (bags)

Month	Opening	Packing	Dispatch	Closing	Gap (% of packing)	Reconciliation difference
June 2025	10,855	40,085	42,418	8,522	−5.8	0
July 2025	8,522	50,660	49,106	10,337	+3.1	−261
August 2025	10,337	50,799	52,907	8,229	−4.1	0

Note. Gap = (Packing − Dispatch) ÷ Packing; negative values mean dispatch exceeded packing. Reconciliation difference = Opening + Packing − Dispatch − Closing.

Figure 7

Monthly packing, dispatch and closing stock, June to August 2025



Note. Source: plant stock reports; Table 6.

5.4 Reconciliation test (RQ1 and RQ2)

June and August reconcile exactly. In July, opening stock of 8,522 plus packing of 50,660 minus dispatch of 49,106 gives an expected closing stock of 10,076 bags, but the report shows 10,337, a difference of 261 bags. That is 0.5 per cent of July packing and 2.5 per cent of July closing stock. The aggregated data do not show whether the cause is an unrecorded receipt, an inter-plant or inter-SKU transfer, a returned-goods entry, a timing cut-off or a keying error. The small size suggests a recording matter rather than a physical loss, but this cannot be confirmed from the data used, and the item should be traced by the stores and finance teams. The result illustrates why reconciliation should be a documented monthly control, since an unexplained quantity carried at FIFO cost flows directly into reported inventory and cost of goods sold.

5.5 Inventory turnover and days on hand (RQ2)

Table 7 and Figure 8 show that approximate monthly turnover rose from 4.38 times in June to 5.21 in July and 5.70 in August, a 30 per cent improvement. Days of stock on hand fell correspondingly from 6.9 to 6.0 and 5.4, and closing stock as a share of monthly dispatch dropped from 20.1 per cent to 15.6 per cent. The pattern agrees with the principle that leaner stock supports better performance (Koumanakos, 2008; Chen et al., 2005), and in this case it arose together with rising volumes rather than from reduced activity. Because the series covers only three months in a season of rising output, it should not be read as a lasting trend. Very low holding periods also reduce the buffer against supply or demand shocks, which is why the improvement is a positive signal only as long as service levels hold.

Table 7

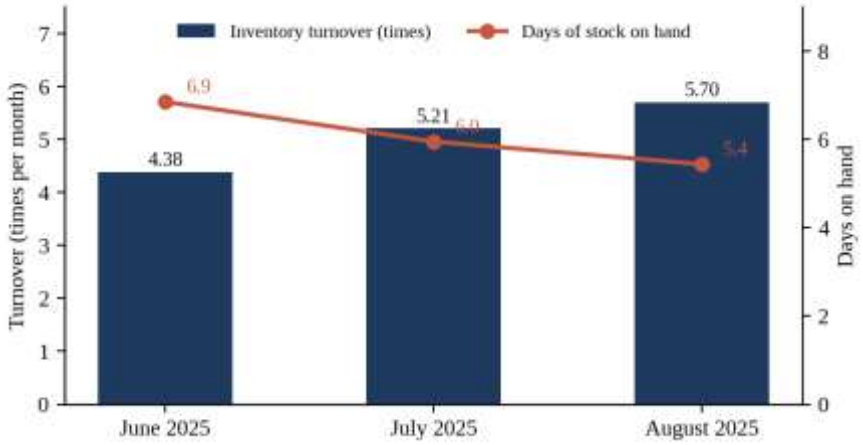
Approximate inventory turnover and days on hand, Bhandgaon plant

Month	Dispatch (bags)	Average stock (bags)	Turnover (times)	Days on hand	Closing stock as % of dispatch
June 2025	42,418	9,689	4.38	6.9	20.1
July 2025	49,106	9,430	5.21	6.0	21.0
August 2025	52,907	9,283	5.70	5.4	15.6

Note. Days on hand uses 30 days for June and 31 days for July and August.

Figure 8

Approximate inventory turnover and days of stock on hand, June to August 2025



Note. Source: Table 7.

5.6 Packing-material cost (RQ3)

In July 2025 the company consumed 80,969 packing bags and liners at a total cost of ₹18,22,461 (about ₹18.2 lakh). Table 8 presents the five itemised categories, which account for 23,639 bags (29.2 per cent of bags) and ₹6,68,996 (36.7 per cent of cost); the remaining 63.3 per cent of cost relates to materials not itemised in the source report. Among itemised categories, hominy-feed bags (₹2,12,337) and 40 kg corn-meal bags (₹2,11,921) have the largest total cost, with jumbo bags third (₹1,97,443). The most striking feature is unit cost (Figure 9): a jumbo bag cost ₹506 against ₹17 to ₹26 for the other itemised categories, about 20 to 30 times as much per bag. Only 390 jumbo bags were consumed, yet they generate 10.8 per cent of the month's packing cost.

Table 8

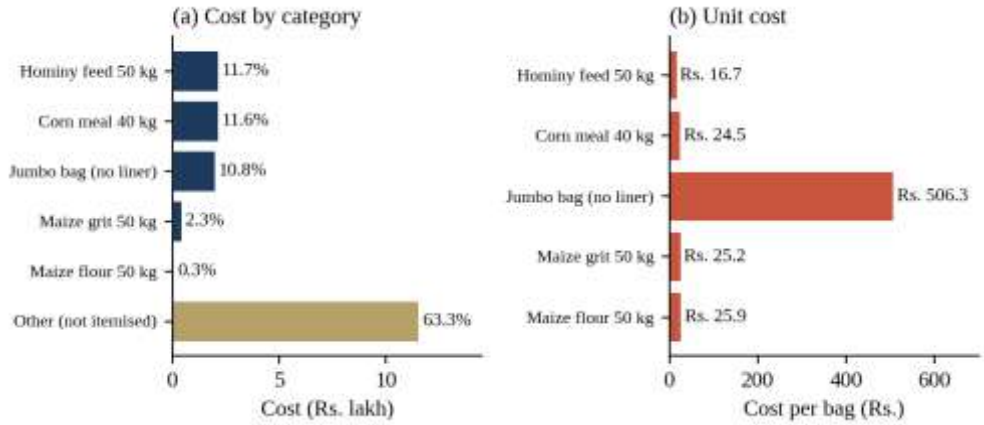
Packing-material consumption and cost, July 2025

Packing material	Bags consumed	Cost (₹)	Share of total cost (%)	Cost per bag (₹)
Anand hominy feed 50 kg	12,715	2,12,337	11.7	16.70
Corn meal 40 kg (with inner liner)	8,664	2,11,921	11.6	24.46
Jumbo bag (without liner)	390	1,97,443	10.8	506.26
Maize grit 50 kg green (with liner)	1,670	42,115	2.3	25.22
Maize flour 50 kg (with inner liner)	200	5,180	0.3	25.90
Itemised subtotal	23,639	6,68,996	36.7	28.30
Other materials (not itemised)	57,330	11,53,465	63.3	20.12
Total, all packing materials	**80,969**	**18,22,461**	**100.0**	**22.51**

Note. Source: company packing-material report, July 2025; shares and unit costs computed by the author. Amounts are in Indian digit grouping (1,00,000 = one lakh). "Other" is the difference between the reported total and the itemised categories.

Figure 9

Packing-material cost composition and unit cost, July 2025



Note. Source: Table 8.

Dividing total packing cost by the 49,106 bags dispatched in July gives ₹37.11 per bag dispatched, whereas dividing by bags consumed gives ₹22.51. The first figure should be regarded as an upper-bound benchmark, because the consumption report (80,969 bags) is wider than plant dispatch (49,106 bags) and therefore appears to cover more than the Bhandgaon plant's dispatched products. It remains useful as a month-on-month tracking ratio if the scope is held constant. An ABC view of the data would class jumbo bags as an A item on unit cost, hominy-feed and corn-meal bags as A or B items on total spend, and the low-value liners as C items.

5.7 Financial capacity to carry inventory (RQ4)

The company-level indicators in Section 3.3 show that the financial constraint on inventory is currently loose. Total debt is only 0.3 times OPBDIT, interest coverage is 99.9 times, and liquidity is rated strong. The company could therefore hold more safety stock of key raw materials without significant strain, if this were judged desirable. The weaker point is operating margin: a 10.5 per cent OPBDIT margin in a commoditised business depends on cost control, and the plant-level evidence suggests that the controllable levers are stock rotation, reconciliation, ageing of slow-moving SKUs and packing cost, rather than the balance sheet.

6. Discussion

RQ1: fit between physical and cost flow. The documented process of batch tagging, order-of-receipt storage and time-stamped system records places the cost flow in line with physical flow, as FIFO requires. The reconciliation test supports this for two of three months and flags one difference that should be investigated. FIFO therefore appears to be well suited to a perishable product mix, which agrees with the accounting literature that associates FIFO with goods that deteriorate (Kieso et al., 2016). Weighted-average costing could be more realistic for raw maize if intake lots were blended in a common silo before milling, a feature that the available records do not describe.

RQ2: efficiency of stock movement. Packing and dispatch stayed within about six per cent of each other, turnover improved by almost a third, and days on hand fell by 1.4. These are signs of demand-aligned planning. At the same time, the June product-group analysis shows dispersion that an aggregate would hide: grit built stock at a turnover of 3.59 times while flour was drawn down by 71 per cent. In a FIFO system, slow movers carry older batches and the highest risk of quality loss, so SKU-level or group-level monitoring is a more precise control than a plant-level ratio. This is consistent with Gaur et al. (2005), who caution that turnover varies with product economics and should be read in context.

RQ3: concentration of packing cost. Cost is concentrated by value in a small number of categories and by unit price in the jumbo bag. A procurement review focused on these items is likely to give more saving per hour of effort than a broad review of all materials. The large unitemised share (63.3 per cent) is itself a finding: reporting should itemise all material categories so that an ABC classification is complete.

RQ4: financial capacity. The company's transformation, with revenue down 49 per cent and profit up almost fivefold, shows that margin quality, not scale, now drives value. Falling finance cost explains much of the gain in coverage. This finding supports the view that a company in this position should concentrate on operating efficiency, including inventory efficiency, since the balance sheet has little remaining room for improvement. It also gives the company freedom to select safety-stock levels on operating grounds.



The use of inventory records for planning is supported by Kesavan et al. (2010), who found that inventory data improve sales forecasts. The monthly records studied here are a ready input for a simple moving-average forecast of packing requirements by SKU, which would address the alternating over- and under-packing that appears in Table 6.

7. Managerial Implications and Recommendations

The recommendations in Table 9 follow from the findings and are intended to strengthen the existing FIFO system and not to replace it. Priority reflects the effort needed and the speed of expected benefit. The reconciliation threshold in the second row is a suggestion for management to calibrate, not a standard.

Table 9

Recommendations, owners and priority

Recommendation	Finding addressed	Owner	Priority
Retain FIFO as the valuation policy and apply it consistently every year	FIFO matches perishable physical flow (5.1)	Finance	Ongoing
Adopt a documented monthly reconciliation checklist for all plants, with a tolerance (for example 0.25% of packing) and a named owner who clears differences before month-end close	261-bag difference in July (5.4)	Finance and plant stores	Near term
Add SKU-level turnover and ageing reports to the monthly pack, and review slow-moving grit stock under the lower-of-cost-and-NRV test	Dispersion across groups (5.2)	Finance and operations	Near term
Review packing cost by ABC class: negotiate or re-source jumbo and hominy-feed bags and itemise all categories	Cost concentration (5.6)	Procurement	Near term
Introduce a simple moving-average or ERP-embedded forecast of packing by SKU	Alternating packing–dispatch gap (5.3)	Operations and finance	Medium term
Formalise price-risk practice for key agro inputs, including forward contracts where feasible	Commodity exposure (3.3)	Treasury and finance	Medium term
Set a baseline for the Palava gram-flour unit using the same ratios once it is commissioned	Scale-up risk (3.2)	Finance	On commissioning

Note. Prepared by the author. NRV = net realisable value; ERP = enterprise resource planning; SKU = stock-keeping unit.

8. Limitations and Future Research

Several limitations qualify the findings. The sample is one plant and three months, so seasonality and plant-specific features cannot be separated from general behaviour. Stock records are in bags, which differ in weight (25 to 50 kg) and value, so the ratios are volume-based and not cost-based. The data are company-reported and not independently audited, and product-level detail exists only for June. The packing-material report covers one month and a wider scope than plant dispatch. The analysis is descriptive: three observations cannot support statistical testing, and the relationships reported are associations rather than demonstrated causes. No peer comparison was attempted, since segment-level data for regional competitors are not public.

Future studies could extend the series to a full financial year to capture seasonality, compare plants within the group, convert volume ratios into rupee-based turnover and days-inventory-outstanding using costed records, and estimate the



profit and tax effect of switching between FIFO and WAC using actual batch costs. Primary data from stores, procurement and finance staff and from distributors would add the perspective of those who operate and depend on the system. A replication at the new Palava unit would test whether the same discipline carries over to a newly built plant.

9. Conclusion

This paper has examined inventory valuation and management at a regional agro-food manufacturer through the lens of FIFO. FIFO is well matched to the physical flow of perishable products at PFOL, and the monthly records show closely aligned packing and dispatch, a 30 per cent rise in approximate turnover and a fall in stock-holding period from 6.9 to 5.4 days over June to August 2025. The same records show areas for improvement: wide differences between product groups, one unreconciled difference of 261 bags in July, and high cost concentration in a small set of packing materials. At company level, the divestment of edible-oil refining reduced revenue by 49 per cent but raised profit almost fivefold and lowered leverage to a very low level, so inventory efficiency is now one of the main controllable drivers of margin. For finance practitioners the message is that a valuation policy should be tested against operating records on a regular basis, and that simple ratios computed from routine stock reports can reveal concentration, drift and recording gaps before they appear in the financial statements. For researchers the study offers a replicable template for small-sample, record-based inventory analysis in Indian food manufacturing.

Declarations

Conflicts of interest. The author declares no conflict of interest.

Funding. No external funding was received for this study.

Ethical approval. The study used aggregated, non-personal secondary data supplied with the permission of the host organisation. No human participants were involved and formal ethical approval was not required.

Data availability. Summary figures are reported in the paper. The underlying company records are confidential and are not publicly available.

Background of the work. The study is based on the author's on-the-job training project undertaken as part of a Master of Business Administration programme.

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Appendix A

Table A1

SKU-level stock report, Bhandgaon plant, June 2025 (bags)

Description	Opening	Packing	Dispatch	Closing
50 kg flaking grit	0	2,400	2,400	0
25 kg maize grit	0	2,640	2,640	0
40 kg maize grit	0	1,100	0	1,100
50 kg maize grit	3,200	10,296	9,626	3,870
25 kg corn meal	0	640	640	0
40 kg corn meal	3,021	12,329	13,125	2,225
50 kg corn meal	0	1,500	1,500	0
25 kg maize flour	0	1,760	1,760	0
45 kg flour plain	134	—	134	0
45 kg Samrat flour	290	2,476	2,759	7
50 kg maize flour	4,210	3,270	6,160	1,320
50 kg Samrat flour	0	1,674	1,674	0
Total	**10,855**	**40,085**	**42,418**	**8,522**

Note. Source: company stock report, June 2025. Every row satisfies opening + packing − dispatch = closing.