

# Rice Mill Data Model – Complete Data Dictionary

Scope: Procurement, Quality, Inventory & Traceability, Production (Raw/Parboiled), Sales & Receivables, Purchase & Payables, Custom Milling (CMR), Maintenance, and Finance.

## 1) Procurement & Quality

### SUPPLIER

Field	Type	Key	Null	Description
supplier_id	UUID	PK	No	Unique supplier identifier
supplier_type	VARCHAR(20)		No	Farmer   Trader   FPO
name	TEXT		No	Legal/trade name
gstin	VARCHAR(20)		Yes	GST registration (if applicable)
phone	VARCHAR(25)		Yes	Primary contact
address	TEXT		Yes	Full postal address
bank_account	TEXT		Yes	Bank A/C for payments
ifsc	VARCHAR(15)		Yes	IFSC for NEFT/RTGS
status	VARCHAR(20)		No	Active   Inactive

### PROCUREMENT\_CONTRACT

Field	Type	Key	Null	Description
contract_id	UUID	PK	No	Contract header
supplier_id	UUID	FK→SUPPLIER	No	Linked supplier
start_date	DATE		No	Contract validity start
end_date	DATE		Yes	Contract validity end
variety	VARCHAR(50)		No	Paddy variety (IR64, PR11, etc.)
msp_rate_per_qtl	DECIMAL(12,2)		Yes	MSP or agreed base rate
negotiated_premium_disc	DECIMAL(12,2)		Yes	+/- premium over MSP
is_cmr	BOOLEAN		No	Custom milling program flag
season	VARCHAR(20)		No	e.g., KMS 2025-26
terms	TEXT		Yes	Payment terms/clauses

### WEIGHBRIDGE\_TICKET

Field	Type	Key	Null	Description
ticket_id	UUID	PK	No	Weighbridge slip ID
in_time	TIMESTAMP		No	Gate-in timestamp
out_time	TIMESTAMP		Yes	Gate-out timestamp
gross_weight_kg	DECIMAL(14,3)		No	Gross weight
tare_weight_kg	DECIMAL(14,3)		No	Tare weight
net_weight_kg	DECIMAL(14,3)		No	Computed/validated net
vehicle_no	VARCHAR(20)		No	Vehicle registration
photo_ref	TEXT		Yes	Photo/file reference
gate_pass_no	VARCHAR(30)		Yes	Gate pass identifier

## QC\_RESULT

Field	Type	Key	Null	Description
qc_id	UUID	PK	No	QC record ID
paddy_delivery_id	UUID	FK→PADDY_DELIVERY (UNIQUE)	No	One-to-one with delivery
moisture_pct	DECIMAL(5,2)		No	Moisture % (wet basis)
fgn_pct	DECIMAL(5,2)		Yes	Foreign matter %
broken_pct	DECIMAL(5,2)		Yes	Broken kernels %
immature_pct	DECIMAL(5,2)		Yes	Immature/green %
damaged_pct	DECIMAL(5,2)		Yes	Discoloured/damaged %
grade	VARCHAR(10)		No	A   FAQ   Rejected
remarks	TEXT		Yes	Inspector notes

## PADDY\_DELIVERY

Field	Type	Key	Null	Description
paddy_delivery_id	UUID	PK	No	Delivery header
supplier_id	UUID	FK→SUPPLIER	No	Source supplier
contract_id	UUID	FK→PROCUREMENT_CONTRACT	Yes	Applicable contract
ticket_id	UUID	FK→WEIGHBRIDGE_TICKET	Yes	Weighment linkage
qc_id	UUID	FK→QC_RESULT	Yes	QC linkage
delivery_date	DATE		No	Posting date
variety	VARCHAR(50)		No	Variety as received
accepted_weight_kg	DECIMAL(14,3)		No	Net accepted
rejection_weight_kg	DECIMAL(14,3)		Yes	Rejected/deducted
lot_code	VARCHAR(40)	UNIQUE	No	Traceable lot/batch code
storage_location	VARCHAR(50)		Yes	Yard/Silo/Bin
is_cmr	BOOLEAN		No	CMR program flag
ewaybill_no	VARCHAR(50)		Yes	E-way bill linkage

## 2) Inventory & Traceability

### STORAGE\_BIN

Field	Type	Key	Null	Description
bin_id	UUID	PK	No	Bin/Silo/Godown ID
bin_code	VARCHAR(30)		No	Human-readable code
area	VARCHAR(30)		No	Yard/Warehouse/Silo
capacity_kg	DECIMAL(14,3)		Yes	Rated capacity
uom	VARCHAR(10)		No	Typically KG
status	VARCHAR(20)		No	Active   Blocked

### INVENTORY\_LOT

Field	Type	Key	Null	Description
id	UUID	PK	No	Inventory lot ID
type	VARCHAR(20)		No	PADDY   RICE_HEAD   RICE_BROKEN   BRAN   HUSK   PA
riety_grade	VARCHAR(80)		Yes	e.g., IR64 5%
code	VARCHAR(40)		No	Traceable code
_id	UUID	FK→STORAGE_BIN	Yes	Current location
ated_on	DATE		No	Lot creation date
_kg	DECIMAL(14,3)		No	On-hand quantity
m	VARCHAR(10)		No	KG
ource_delivery_id	UUID	FK→PADDY_DELIVERY	Yes	For paddy-derived lots
ource_process_id	UUID	FK→PROCESS_ORDER	Yes	For processed lots
_status	VARCHAR(20)		No	Hold   Release   Rejected

### INVENTORY\_TXN

Field	Type	Key	Null	Description
txn_id	UUID	PK	No	Movement ID
lot_id	UUID	FK→INVENTORY_LOT	No	Lot affected
process_id	UUID	FK→PROCESS_ORDER	Yes	If related to processing
so_id	UUID	FK→SALES_ORDER	Yes	If related to sales
grn_id	UUID	FK→GRN	Yes	If related to purchase
txn_date	DATE		No	Posting date
txn_type	VARCHAR(12)		No	RECEIPT   ISSUE   ADJUST   TRANSFER
qty_kg	DECIMAL(14,3)		No	Quantity (+/-)
uom	VARCHAR(10)		No	KG
ref_doc_no	VARCHAR(40)		Yes	External reference
notes	TEXT		Yes	Reason/remarks

### 3) Production (Raw & Parboiled)

#### PROCESS\_ORDER

Field	Type	Key	Null	Description
process_id	UUID	PK	No	Production order ID
start_date	DATE		Yes	Start date
end_date	DATE		Yes	Close date
process_type	VARCHAR(20)		No	RAW_MILL   PARBOIL   DRY   POLISH
line	VARCHAR(20)		Yes	Line/section
input_paddy_kg	DECIMAL(14,3)		Yes	Input quantity
planned_head_pct	DECIMAL(5,2)		Yes	Planned yield %
planned_broken_pct	DECIMAL(5,2)		Yes	Planned yield %
planned_bran_pct	DECIMAL(5,2)		Yes	Planned yield %
planned_husk_pct	DECIMAL(5,2)		Yes	Planned yield %
status	VARCHAR(20)		No	Planned   InProcess   Closed
remarks	TEXT		Yes	Notes

#### PROCESS\_STAGE

Field	Type	Key	Null	Description
stage_id	UUID	PK	No	Stage record
process_id	UUID	FK→PROCESS_ORDER	No	Parent PO
stage_name	VARCHAR(30)		No	Preclean/Husker/Whitener/...
start_time	TIMESTAMP		Yes	Start
end_time	TIMESTAMP		Yes	End
power_kwh	DECIMAL(12,3)		Yes	Electricity consumed
steam_kg	DECIMAL(12,3)		Yes	For parboiling/drying
notes	TEXT		Yes	Remarks

#### YIELD\_BREAKUP

Field	Type	Key	Null	Description
yield_id	UUID	PK	No	Yield record
process_id	UUID	FK→PROCESS_ORDER	No	Parent PO
head_kg	DECIMAL(14,3)		No	Head rice produced
broken_kg	DECIMAL(14,3)		No	Broken
bran_kg	DECIMAL(14,3)		No	Bran
husk_kg	DECIMAL(14,3)		No	Husk
losses_kg	DECIMAL(14,3)		Yes	Handling/evaporation losses

#### PRODUCT\_BATCH

Field	Type	Key	Null	Description
product_batch_id	UUID	PK	No	Product batch

Field	Type	Key	Null	Description
process_id	UUID	FK→PROCESS_ORDER	No	Source process
product_type	VARCHAR(20)		No	RICE_HEAD   RICE_BROKEN   BRAN   HUSK
variety_grade	VARCHAR(80)		Yes	e.g., IR64 5%
batch_date	DATE		No	Batch date
qty_kg	DECIMAL(14,3)		No	Batch quantity
qa_release_status	VARCHAR(20)		No	Hold   Release   Rejected

## PACKING\_LOT

Field	Type	Key	Null	Description
pack_id	UUID	PK	No	Packing record
product_batch_id	UUID	FK→PRODUCT_BATCH	No	Source batch
sku_code	VARCHAR(40)		No	SKU identifier
brand	VARCHAR(60)		Yes	Brand/label
net_weight_kg	DECIMAL(8,3)		No	5/10/25/50 kg etc.
bag_no_from	VARCHAR(20)		Yes	Start bag ID
bag_no_to	VARCHAR(20)		Yes	End bag ID
packed_on	DATE		No	Pack date

## 4) Sales & Receivables

### CUSTOMER

Field	Type	Key	Null	Description
customer_id	UUID	PK	No	Customer ID
type	VARCHAR(20)		No	Wholesaler   ModernTrade   Institution   FCI
name	TEXT		No	Legal/trade name
gstin	VARCHAR(20)		Yes	GST registration
address	TEXT		Yes	Postal address
payment_terms	VARCHAR(30)		Yes	e.g., 15D/30D
credit_limit	DECIMAL(14,2)		Yes	Exposure cap
status	VARCHAR(20)		No	Active   Blocked

### SALES\_ORDER

Field	Type	Key	Null	Description
so_id	UUID	PK	No	Sales order ID
customer_id	UUID	FK→CUSTOMER	No	Buyer
so_date	DATE		No	SO date
channel	VARCHAR(20)		Yes	Route/channel
currency	VARCHAR(10)		Yes	INR default
total_value	DECIMAL(14,2)		Yes	Order value
status	VARCHAR(20)		No	Open   Partially Fulfilled   Closed   Cancelled
notes	TEXT		Yes	Remarks

### DELIVERY\_CHALLAN

Field	Type	Key	Null	Description
dc_id	UUID	PK	No	Dispatch note
so_id	UUID	FK→SALES_ORDER	No	Linked SO
dc_date	DATE		No	Dispatch date
vehicle_no	VARCHAR(20)		Yes	Transport vehicle
ewaybill_no	VARCHAR(50)		Yes	E-way bill
shipped_qty_kg	DECIMAL(14,3)		No	Dispatched qty
shipment_status	VARCHAR(20)		No	Pending   Shipped   Delivered

### AR\_INVOICE

Field	Type	Key	Null	Description
ar_id	UUID	PK	No	AR invoice ID
so_id	UUID	FK→SALES_ORDER	No	Source order
invoice_date	DATE		No	Billing date
invoice_no	VARCHAR(30)		No	Number/series
invoice_value	DECIMAL(14,2)		No	Before tax

Field	Type	Key	Null	Description
tax_value	DECIMAL(14,2)		Yes	GST etc.
total_value	DECIMAL(14,2)		No	Grand total
status	VARCHAR(20)		No	Open   Paid   Partial   CreditNote

## 5) Purchase & Payables

### VENDOR

Field	Type	Key	Null	Description
vendor_id	UUID	PK	No	Vendor ID
name	TEXT		No	Legal name
gstin	VARCHAR(20)		Yes	GST
address	TEXT		Yes	Address
type	VARCHAR(20)		No	Spares   Packaging   Utilities   Services
status	VARCHAR(20)		No	Active   Inactive

### PURCHASE\_ORDER

Field	Type	Key	Null	Description
po_id	UUID	PK	No	PO ID
vendor_id	UUID	FK→VENDOR	No	Vendor
po_date	DATE		No	PO date
item_type	VARCHAR(20)		No	Category
item_desc	TEXT		No	Description/spec
qty	DECIMAL(14,3)		Yes	Ordered qty
uom	VARCHAR(10)		Yes	KG/NOS
rate	DECIMAL(14,2)		Yes	Unit price
value	DECIMAL(14,2)		Yes	Line value
status	VARCHAR(20)		No	Open   Partially Received   Closed   Cancelled

### GRN

Field	Type	Key	Null	Description
grn_id	UUID	PK	No	GRN ID
po_id	UUID	FK→PURCHASE_ORDER	No	Source PO
grn_date	DATE		No	Receipt date
received_qty	DECIMAL(14,3)		No	Quantity received
qa_status	VARCHAR(20)		No	Hold   Release   Rejected
remarks	TEXT		Yes	Notes

### AP\_INVOICE

Field	Type	Key	Null	Description
ap_id	UUID	PK	No	AP invoice ID
po_id	UUID	FK→PURCHASE_ORDER	No	Source PO
invoice_date	DATE		No	Vendor invoice date
invoice_no	VARCHAR(30)		No	Number/series
subtotal	DECIMAL(14,2)		No	Before tax
tax_value	DECIMAL(14,2)		Yes	GST etc.

Field	Type	Key	Null	Description
total_value	DECIMAL(14,2)		No	Grand total
status	VARCHAR(20)		No	Open   Paid   Hold

## 6) Custom Milling (CMR)

### CMR\_CONTRACT

Field	Type	Key	Null	Description
cmr_contract_id	UUID	PK	No	CMR contract
season	VARCHAR(20)		No	e.g., KMS 2025-26
start_date	DATE		Yes	Valid from
end_date	DATE		Yes	Valid till
milling_fee_per_qtl	DECIMAL(12,2)		No	Milling fee
storage_fee_per_qtl	DECIMAL(12,2)		Yes	Custody/maintenance fee
rice_type	VARCHAR(12)		No	Raw   Parboiled
terms	TEXT		Yes	Other clauses

### CMR\_ALLOCATION

Field	Type	Key	Null	Description
cmr_alloc_id	UUID	PK	No	Allocation line
cmr_contract_id	UUID	FK→CMR_CONTRACT	No	Parent contract
variety	VARCHAR(50)		No	Variety allocated
paddy_qty_qtl	DECIMAL(14,2)		No	Allocated quantity
due_date	DATE		Yes	Fulfilment date
status	VARCHAR(20)		No	Open   In Process   Closed

## 7) Maintenance & Downtime

### EQUIPMENT

Field	Type	Key	Null	Description
eqp_id	UUID	PK	No	Equipment ID
code	VARCHAR(30)		No	Tag/asset code
name	VARCHAR(80)		No	Equipment name
line	VARCHAR(20)		Yes	Production line
oem	VARCHAR(60)		Yes	OEM/make
commissioned_on	DATE		Yes	Commissioning date
status	VARCHAR(20)		No	Active   Down   Retired

### MAINTENANCE\_ORDER

Field	Type	Key	Null	Description
mo_id	UUID	PK	No	Work order
eqp_id	UUID	FK→EQUIPMENT	No	Target equipment
open_date	DATE		No	Opened on
close_date	DATE		Yes	Closed on
type	VARCHAR(12)		No	PM   CM   Calibration
priority	VARCHAR(10)		Yes	Low/Med/High
work_done	TEXT		Yes	Closure notes

### DOWNTIME\_LOG

Field	Type	Key	Null	Description
dt_id	UUID	PK	No	Downtime record
eqp_id	UUID	FK→EQUIPMENT	No	Affected equipment
start_time	TIMESTAMP		No	Start timestamp
end_time	TIMESTAMP		Yes	End timestamp
reason_code	VARCHAR(20)		No	Electrical   Mechanical   Material   Planned
remarks	TEXT		Yes	Notes/root cause

### SPARES\_ISSUE

Field	Type	Key	Null	Description
issue_id	UUID	PK	No	Spare issue record
mo_id	UUID	FK→MAINTENANCE_ORDER	No	Consumed against WO
spare_code	VARCHAR(40)		No	Part/stock code
qty	DECIMAL(12,3)		No	Quantity used
value	DECIMAL(14,2)		Yes	Extended value

## 8) Finance & Accounting

### GL\_ACCOUNT

Field	Type	Key	Null	Description
gl_id	UUID	PK	No	Ledger account
code	VARCHAR(20)		No	Account code
name	VARCHAR(80)		No	Account name
type	VARCHAR(20)		No	Asset   Liability   Equity   Income   Expense

### GL\_ENTRY

Field	Type	Key	Null	Description
gle_id	UUID	PK	No	Journal line
gl_id	UUID	FK→GL_ACCOUNT	No	Ledger
post_date	DATE		No	Posting date
doc_ref	VARCHAR(40)		Yes	Source doc number
doc_type	VARCHAR(20)		Yes	SO/PO/GRN/INV/ITXN
debit	DECIMAL(14,2)		Yes	Debit amount
credit	DECIMAL(14,2)		Yes	Credit amount
memo	TEXT		Yes	Narration