Rice Milling Yield: Husk, Bran, Head and Broken Rice

Brown rice, husk, bran, milled rice, head rice and brokens from paddy, from husk share, milling degree (bran removed) and head rice share of milled rice.

Method: Definitions and mass and energy balances: mass balance through husking and whitening

Input parameters

Unit system: SI

Parameter	Value	Unit
Paddy (at milling moisture)	100,000	kg
Husk share of paddy	20.000	%
Bran and germ removed (share of brown rice)	9.0000	%
Head rice share of milled rice	80.000	%

Calculated results

Parameter	Value	Unit
Brown rice	80.000	t
Husk	20.000	t
Bran	7.2000	t
Milled rice	72.800	t
Head rice	58.240	t
Brokens	14.560	t
Milling yield (milled rice on paddy)	72.800	%

Formula and method

$$M_b = M(1-h), \quad M_r = M_b(1-b), \quad M_{hr} = r_h M_r$$

$$M_h = hM, \quad M_n = bM_b, \quad M_{bk} = M_r - M_{hr}, \quad Y_m = \frac{M_r}{M}$$

Variables

M	Paddy (at milling moisture)	kg
h	Husk share of paddy	-
b	Bran and germ removed (share of brown rice)	-
r_h	Head rice share of milled rice	-
M_b	Brown rice	kg
M_h	Husk	kg
M_n	Bran	kg
M_r	Milled rice	kg
M_{hr}	Head rice	kg
M_{bk}	Brokens	kg
Y_m	Milling yield (milled rice on paddy)	-

Method and standards

Mass balance.

Assumptions and limits

- Shares at the same moisture.
- The balance closes exactly: dust, spillage and moisture lost in milling are not allowed for.

References

- Definitions and mass and energy balances: mass balance through husking and whitening

Report details

Report reference	FCC-D1B7-QNSC (the same inputs always give the same reference)
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Calculator	Rice Milling Yield: Husk, Bran, Head and Broken Rice
Method last reviewed	13 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/chemical/textile-rice-oil/rice-milling-yield

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.