

Bulk density and angle of repose of grain and seed

The bulk density (kg/cubic metre or tonnes/cubic metre) and repose angle of grain varies with type, variety, moisture content, quality and contamination level.

Estimate bulk density by weighing 1 litre of grain. Its weight in kilograms is the bulk density in tonnes/cubic metre. Multiply by 100 if you want kg/hL or by 1000 if you want kg/m³.

Typical bulk densities for common grains and bulk materials

(Note that the values given are typical for each grain type only. You should check them with other sources if high accuracy is important.)

Commodity	t/m ³	kg/m ³	Commodity	t/m ³	kg/m ³
Barley grain	0.62	620	Canary seed	0.70	700
Canola	0.69	690	Chickpea	0.74	740
Cotton seed	0.40	400	Cowpea	0.75	750
Flax seed	0.70	700	Lucerne seed	0.77	770
Lucerne pellets	0.67	670	Linseed	0.73	730
Lupins	0.77	770	Maize - grain	0.72	720
Millet	0.63	630	Mung Bean	0.75	750
Navy beans	0.76	760	Oats - whole	0.48	480
Peanut in shell	0.30	300	Peanut -shelled	0.64	640
Rye - grain	0.70	700	Safflower	0.53	530
Sorghum (milo)	0.73	730	Soybean - whole	0.75	750
Sesame seed	0.59	590	Sunflower - seed	0.42	420
Triticale	0.70	700	Wheat - grain	0.77	770

Angle of repose for common grains

Grain	Angle	Grain	Angle
Barley	28°	Linseed	22°
Safflower	25°	Sorghum	30°
Sunflower	30°	Wheat	27°

(Actual value depends on moisture content, variety, quality and contamination level.)