

GUIDE TO MANGO NUTRIENTS

VARIETY & RIPENESS — THE TWO DRIVERS OF MANGO NUTRITION

Crespo Organic | Under The Mango Tree | The Ripening Room | #MangoWellness | #MangoEd

◆ VITAMINS & MINERALS

VITAMIN C

Highest in green and semi-ripe mango, declining by roughly half at full ripeness — the green and semi-ripe stages are the peak Vitamin C window. Keitt holds Vitamin C longest due to its slower ripening profile, contributing to its distinctly citrus-forward flavor. Vitamin C in mango supports collagen synthesis, immune function, and iron absorption from other foods eaten alongside it.

VITAMIN A

Mango contains no Vitamin A directly — it delivers beta-carotene, which the body converts into Vitamin A. Vitamin A potential increases dramatically with ripeness; a deeply golden, fully ripe Ataulfo or Mallika is one of the best whole-food sources available. The deeper the flesh color, the higher the Vitamin A potential.

BETA-CAROTENE

A minor player in green mango, beta-carotene increases to approximately 60% of all carotenoids at full ripeness — the direct driver of the flesh color change from pale to deep golden orange. Total carotenoid content in the peel increases approximately fivefold during ripening. Yellow-fleshed varieties — Ataulfo, Nam Doc Mai, Mallika — carry a significantly higher beta-carotene ceiling than Tommy Atkins or Keitt.

CAROTENOIDS

The fat-soluble pigment family — including beta-carotene, lutein, and zeaxanthin — responsible for yellow and orange color in mango flesh and peel. Masked by chlorophyll when green, carotenoids become visible and increase as the mango ripens. Yellow-fleshed varieties carry a higher carotenoid ceiling, and the peel of any variety contains significantly more carotenoids than the flesh.

FOLATE

One of the most overlooked nutrients in mango — most concentrated in the green and semi-ripe stages, declining as ripening progresses. Smaller, denser varieties — particularly Ataulfo and Mallika — carry higher folate concentration than larger, higher-water varieties. Particularly relevant in the context of pregnancy nutrition.

VITAMIN K

Most concentrated in green and semi-ripe mango, declining slightly as sugar accumulation dilutes overall mineral density. Smaller-fruited varieties — Ataulfo, Mallika, Nam Doc Mai — hold Vitamin K values better across ripeness stages than larger, higher-water varieties like Keitt and Tommy Atkins.

POTASSIUM

More concentrated in green and semi-ripe mango, declining slightly as ripening dilutes mineral density — though ripe mango remains a meaningful source. Smaller, denser varieties deliver more concentrated potassium per serving. The semi-ripe stage across smaller varieties is the strongest potassium eating window in mango.

COPPER

Most concentrated in green and semi-ripe mango, copper supports iron absorption — working in direct complement to mango's own Vitamin C, both peaking at the same ripeness stage. Copper also supports connective tissue health, a functional benefit almost never discussed in consumer mango education.

ZINC & MAGNESIUM

Trace minerals present alongside copper and potassium, most concentrated in green and semi-ripe stages. Part of the core nutritional argument for eating mango before full ripeness — a case almost entirely absent from standard mango education. Denser-fleshed varieties deliver more concentrated mineral content per serving than high-water varieties.

IRON

Mango is not a significant source of iron, but its high Vitamin C content enhances iron absorption from other plant-based foods eaten in the same meal — making it a useful pairing with iron-rich foods like legumes and leafy greens.

● POLYPHENOLS & ANTIOXIDANTS

POLYPHENOLS

Mango's polyphenol content rises through mid-ripening then declines at full ripeness — making the semi-ripe stage the peak antioxidant and anti-inflammatory window. The peel contains multiples of the polyphenol concentration found in the flesh. The most antioxidant-rich part of the mango is almost universally discarded in Western eating culture.

MANGIFERIN

The most studied polyphenol in mango — a natural glucosylxanthone with well-documented antioxidant, anti-inflammatory, antidiabetic, and neuroprotective properties. Peaks at the semi-ripe stage and is most concentrated in the peel. Indian-lineage varieties like Mallika produce significantly higher mangiferin concentration than commercial export varieties.

TANNINS

Responsible for the bitterness and astringency of unripe mango; break down as ripening progresses. Ataulfo is notable for particularly high tannin concentration early in ripening, which drops rapidly at semi-ripe and drives its signature sweetness. Kiew Savoy has naturally low tannins even when green, making it palatable raw.

VOLATILE AROMATICS

Terpenes, esters, and lactones develop during final ripening to create each variety's distinct fragrance signature. Beyond fragrance, aromatic esters carry prebiotic properties — selectively feeding beneficial gut bacteria. Nam Doc Mai is particularly notable for its floral-jasmine profile and significant prebiotic ester activity at full ripeness.

ORGANIC ACIDS

Citric and malic acid give unripe mango its sharp, tart flavor; both decline as sugars accumulate during ripening. The balance between residual acidity and sugar at the semi-ripe stage creates flavor complexity — a fully ripe mango with no residual acidity tastes flat and one-dimensional.

★ FATTY ACIDS

OMEGA-3 FATTY ACIDS

Omega-3 fatty acids in mango flesh increase with ripening — one of the most underreported aspects of mango nutrition. Higher-flesh-density varieties — Ataulfo, Mallika, Nam Doc Mai — show this most prominently. The creamy texture of a fully ripe Ataulfo is partly a reflection of this increased lipid development, reframing ripe mango as a source of beneficial fats, not just sugar.

OMEGA-6 FATTY ACIDS

Like Omega-3s, Omega-6 fatty acids increase in mango flesh as the fruit ripens. The presence of both beneficial fatty acids in ripe mango is one of the strongest arguments for the fully ripe eating window beyond flavor — almost entirely absent from standard mango nutrition education.

● GLYCEMIC IMPACT

GLYCEMIC LOAD

Green and semi-ripe mango has a significantly lower glycemic load than fully ripe, due to higher resistant starch and insoluble fiber slowing sugar absorption. A fully ripe mango is still a whole food — fiber, enzymes, and micronutrients all moderate its impact — but the green and semi-ripe stages are genuinely appropriate for people managing blood sugar who have been told to avoid mango entirely.

PREBIOTIC PROPERTIES

Mango delivers prebiotic benefits across all ripeness stages: resistant starch and insoluble fiber in green and semi-ripe stages feed beneficial gut bacteria; soluble pectin fiber and aromatic esters in ripe mango feed the microbiome and moderate glycemic impact. An aspect of mango nutrition almost entirely absent from consumer education.

▲ FIBER & GUT HEALTH

INSOLUBLE FIBER

Predominant in green and semi-ripe mango — passes through the digestive tract intact, adding bulk and supporting gut motility. Tommy Atkins and Kent are the strongest mango sources due to their more pronounced fiber structure. Ataulfo and Mallika are notably low in total fiber — their smooth, fibreless flesh underdelivers on this metric.

SOLUBLE FIBER

As mango ripens and pectin breaks down, fiber shifts from insoluble to increasingly soluble — feeding beneficial gut bacteria, slowing sugar absorption, and supporting cholesterol management. This is a genuinely different functional benefit from insoluble fiber, not a diminished version of the same thing.

PECTIN

The structural polysaccharide in mango's cell walls responsible for both the texture change during ripening and the fiber type shift. As pectinase enzymes break down pectin chains, the flesh softens and becomes creamy while the fiber becomes soluble. The process that changes a mango's texture is changing its gut function.

GUT MICROBIOME

Mango supports gut microbiome health through different pathways at each ripeness stage. Green and semi-ripe mango contributes resistant starch; ripe mango contributes soluble fiber from broken-down pectin and prebiotic aromatic esters — all selectively feeding beneficial bacteria.

RESISTANT STARCH

In green and semi-ripe mango, unconverted starch remains as resistant starch — escaping digestion in the small intestine and feeding beneficial gut bacteria in the large intestine. A significant contributor to the lower glycemic impact of unripe mango. Resistant starch declines as amylase completes the starch-to-sugar conversion during ripening.

◆ ENZYMES

AMYLASE

Drives starch-to-sugar conversion during ripening, raising Brix from 9–14° at harvest to 18–20°+ at full ripeness. Amylase remains biologically active in the ripe flesh when consumed — the ripe mango is actively aiding carbohydrate digestion. A fully ripe mango functions as a digestive aid, not just a sugar source.

PROTEOLYTIC ENZYMES

Present in ripe mango alongside amylase, proteolytic enzymes break down proteins in digestion — similar to bromelain in pineapple and papain in papaya. Their activity in mango increases with ripeness, meaning a fully ripe mango supports both carbohydrate and protein digestion simultaneously.

POLYGALACTURONASE & PECTINASE

The ripening enzymes that break down pectin in mango cell walls, driving the texture transformation from firm to creamy and the fiber shift from insoluble to soluble. Temperature-sensitive and optimal at 65–75°F — the direct reason ripening environment matters so much to final mango quality.

◆ SUGARS & BRUX

BRUX

The percentage of dissolved sugars in mango flesh — the primary ripeness and sweetness indicator. Harvest Brix is typically 9–14° depending on variety; full ripeness reaches 16–20°+, with Kent, Ataulfo, Nam Doc Mai, and Mallika capable of 18°+ when handled correctly. Brix rise is the direct result of amylase-driven starch-to-sugar conversion.

SUCROSE, GLUCOSE, FRUCTOSE

The three sugars produced as amylase breaks down starch during mango ripening. Kent and Ataulfo tend toward sucrose-dominant sweetness; Nam Doc Mai and Mallika develop fructose-forward sweetness with floral top notes. Higher fructose concentration in smaller, high-Brix varieties is a relevant glycemic factor at full ripeness.