



Mango Post-Harvest Standard Operating Procedures

Post-harvest waste is as regenerative as building soil. Wasting a mature mango wastes all the water, carbon, and life that went into it.

Below are answers to the question raised by Mr. Kaushil Patel Gaubharat in PQNK learning group number 3 on WhatsApp.

1. PRE-HARVEST

- Is fruit fully mature (not just green)?
Yes. Maturity $\neq$ color. A green mango can be mature. Check:
 - Flesh turns slightly yellowish when cut.
 - Stalk area sinks slightly.
 - Days from flowering (know your local variety: e.g., Sindhri ~100–110 days).
- Are shoulders filled and color slightly dull?
Yes. Filled shoulders = starch converted to sugars beginning. Dull green = waxy bloom appears → maturity sign.
- Was irrigation stopped before harvest?
Stop irrigation 10–15 days before harvest. Less water = more sugars, less sap, less rot during ripening.

2. HARVESTING

- Is harvest done in cool, dry time?
Early morning (after dew dries) or late evening. Never afternoon heat → fruit respires too fast, latex burns skin.
- Is fruit cut with 2–3 cm stalk (not plucked)?
Yes. Plucking tears the “shoulder” → entry for fungus. Use sharp secateurs.
- Is latex prevented from touching fruit?
Critical. Hold fruit stem down immediately after cutting. Latex on skin causes black spots (lenticel damage).

- Is handling gentle (no drop/pressure)?
Yes. Dropping bruises cells → ethylene bursts unevenly → rot pockets.

3. POST-HARVEST

- Are fruits kept stem-down for latex drain?
For 30–60 minutes in collection crates. Slope crates slightly.
- Are fruits shifted to shade quickly?
Within 1 hour. Sun heats fruit core → uneven ripening + moisture loss.
- Are damaged fruits removed early?
Yes. One damaged fruit acts as a rot accelerator (microbes + ethylene spike).

4. WASHING

- When should washing be done or avoided?
Do not wash before ripening (except if covered in soil). Water + cut stem = fungal entry.
- If washed, should warm water be used and fully dried?
Only if necessary: use warm water (50–55°C for 2–3 min) to kill surface spores, then air-dry completely in shade. For PQNK, better to dry-wipe with clean cloth.

5. DISEASE CONTROL

- How to handle fruits having black spots or slight burn marks?
 - Black spots (lenticel damage / fungal): Keep separate. Do not put in ripening box. Use for pickles or chutney immediately.
 - Burn marks (sun or latex burn): if superficial, ripen separately; check daily. Never mix with clean fruits.

6. RIPENING BASE

- Is dry straw/grass best for ripening?
Yes, for traditional PQNK. Provides cushioning, absorbs moisture,

releases trace ethylene from microbial action.

Better: clean wheat/paddy straw, dried in sun.

- Should fruits be loosely placed?

Yes. Never stack tightly. Air gaps prevent CO₂ build-up and heat.



7. ETHYLENE SOURCE

- Is ripe banana/mango enough for natural ripening?

Yes, for small batches. Ratio: 1 ripe banana or 2 ripe mangoes per 10 mature mangoes in a closed (but vented) box.

- Are onion/mustard useful or myth?

Myth. They emit sulfur compounds, not ethylene, and can impart off-flavor. Avoid.



8. RIPENING SETUP

- Should box be semi-ventilated (not airtight)?

Yes. A few small holes (3–5 mm) on sides. Airtight = anaerobic = off-smell + rot.

- Is straw layering method correct?

Yes: Straw → 1 layer mangoes (stem down) → straw on top → repeat. Max 3 layers.

- How thick should stacking be?

Each layer: single mango thick. Total box height ≤ 30 cm.



9. TEMPERATURE

- What is ideal temperature and humidity?

- Ripening: 22–27°C

- Humidity: 75–85% (not wet; use straw to buffer)

Below 20°C → slow, uneven; above 30°C → over-ripening + rot.



10. LOCATION

- Which place in home is best for ripening?
Dark corner of a room with stable temp (e.g., storage room).
- Which areas must be avoided?
 - AC room (too cold, low humidity)
 - Under fan (dries out)
 - Kitchen (temp fluctuates, ethylene from other fruits causes uneven ripening)
 - Direct sunlight.



11. AIRFLOW

- How much airflow is ideal?
Gentle, indirect airflow. Not stagnant, not windy. Elevate box 2 inches off floor → air under box.



12. FLOOR

- Should fruits avoid direct contact with tiles?
Yes. Cold tile + moisture = condensation = rot.
- What base layer is best?
Jute sack → then straw. Cardboard is okay if dry, but straw is superior (breathable, absorbent).



13. HEAT CONTROL

- How to prevent heat build-up inside pile?
 - Do not stack >3 layers.
 - Turn fruits gently every 24 hours.
 - Keep box in coolest part of room (not near ceiling).



14. MOISTURE

- How to avoid condensation during ripening?
 - Dry straw at start.

- Open box for 10 min once a day (exchange humid air).
- Never spray water on ripening mangoes.



15. ROT PREVENTION

- How to stop one rotten fruit from spoiling others?
Inspect daily (morning). Remove any fruit with:
 - Soft dark spot
 - White or black mold
 - Sour smellPQNK rule: better to remove one early than lose ten later.



16. RIPENESS

- How to identify perfectly ripe mango?
 - Full color (variety specific)
 - Slight give under gentle thumb pressure (not mushy)
 - Strong aroma from stalk end
 - Stalk separates easily when lifted.



17. UNDER / OVER

- Under-ripe: green near stalk, hard flesh, no smell, chalky taste.
- Over-ripe: sunken skin, liquid oozing, fermented smell, fruit flies.
- PQNK note: over-ripe can still be used for puree or natural mango leather — waste not.



18. METHOD

Method	How	PQNK Acceptable?	Result
Natural (straw + banana)	Slow (5–8 days)	✓ Yes	Best taste, texture
Ethylene gas (commercial)	Controlled room	✗ No (not pristine)	Uniform but flavor less
Carbide (CaC_2)	Illegal, toxic	✗ Absolutely not	Dangerous, uneven, ruins soil ethics



19. QUALITY

- Best taste: high sugar + acidity balance → natural slow ripening develops esters.
- Best texture: firm but buttery (no mealiness). Achieved by good pre-harvest maturity + no forced ripening.
- Best shelf life: 5–10 days at room temp after ripe. Achieved by never washing + stem intact + no bruising.



CORE QUESTION: Top 3 mistakes causing rot instead of ripening

1. Plucking instead of cutting → torn skin near stem → fungus entry → internal rot within 48 hours.
2. Washing before ripening → residual water trapped near stalk → soft rot.
3. Stacking too deep (>4 layers) without straw → heat + moisture + no air → self-cooking and rot.

PQNK bonus mistake: Mixing fruits with hidden damage (bruises, spots) into the same ripening box.

Final PQNK guidance

“A mango is a living seed with a fruit around it, not a dead commodity. Ripening is not forcing; it is accompanying. Slow, respectful ripening gives sweetness without hidden cost. One rotten mango removed early saves the entire harvest’s honor.”

Applying PQNK without understanding nature’s operating system will not deliver abundance, stability, or nutrient density.

*PQNK (pronounced “picnic”)—the regenerative & sustainable **Pristine Organic Farming System**—is grounded in **Natural Ecosystem Science**. This science employs perennial biodiversity, protects soil with organic mulch, and avoids practices such as water inundation, tillage disturbance, and leaving soil bare.*

*It is the **process** that matters most. PQNK is a pristine production system designed not merely for yield, but for optimal, balanced output—where quality, sustainability, and ecological harmony emerge from a self-regulated, zero-external-input methodology.*

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