FARMER'S PRIDE INTERNATIONAL

Milestone 4

Technology and Value Addition

Select appropriate equipment and control a safe, traceable process



Illustrative learning scene. Image credits are on the references page.

PRACTICAL STUDY MANUAL

Edition 1.0 | 25 October 2026

HOW TO USE THIS MANUAL

Learn, practise, record, improve

Use this practical manual alongside your enrolled lessons and tutor instructions. It supports the milestone theme; it does not replace the complete Academy curriculum.

Work through one lesson at a time. Complete the activity using your own enterprise or the clearly labelled teaching example. Keep dated notes and discuss uncertain technical decisions with a suitable local adviser.

By the end, you should be able to:

- Map a processing activity from receiving to dispatch.
- Identify hazards, quality checks and records.
- Compare equipment using total operating needs.
- Design a small process trial and a traceability exercise.

The self-check is for practice. Your programme's official assessment and certificate requirements remain separate from these exercises.

LESSON 1 OF 6

Choose a product, then design the process

Begin with the intended product and customer specification. Map receiving, sorting, preparation, processing, packing, storage and dispatch. Record the expected input and output at each stage. A machine purchase is not a process design.

Identify what the product must be protected from and what may change during processing. Fresh produce, dried leaves, powders and oils require different controls. Use competent technical advice to select and validate the actual process. Do not borrow another crop's time, temperature or shelf-life claim without evidence.

Try it in practice

Draw the process for one proposed product. Mark every handover and the person responsible for accepting or rejecting the material.

LESSON 2 OF 6

Build hygiene into ordinary work

Good hygiene practices form the foundation of a food operation. Consider water, cleaning, equipment condition, personal hygiene, pests, waste and separation of dirty and clean tasks. Design work so people can follow the required method consistently.

A written procedure should say what is done, by whom, when, with what materials and how completion is checked. Training, supervision and records matter as much as the wording. Gloves or hair covers alone do not establish a safe process. Use requirements appropriate to the product, facility and market.

Try it in practice

Write a short cleaning procedure for a work surface. Include the method, approved materials, responsible person, inspection and record.

LESSON 3 OF 6

Separate hazards from appearance

A product can look attractive and still be unsafe. Consider biological, chemical and physical hazards across the process. Examples include contaminated water, unsuitable chemical residues and fragments from damaged equipment. Ask which controls prevent or reduce each relevant hazard.

A formal hazard analysis and HACCP plan require product-specific expertise and validation. This manual provides preparation exercises, not certification. Keep routine checks and corrective actions clear: what is measured, what is acceptable, what happens if the result fails and who authorises release.

Try it in practice

Choose three process steps. For each, list one plausible hazard, an existing control, the record and the action when the control fails.

LESSON 4 OF 6

Compare total equipment needs

Check more than purchase price. Compare usable capacity, energy and water needs, installation, maintenance, spare parts, cleaning, operator skill, support and expected downtime. Ask whether the stated capacity applies to your actual crop, moisture level and operating conditions.

The slowest stage determines practical throughput. A larger mill may add little value when drying or packing is the bottleneck. Test performance with a representative batch where possible. Record trial conditions and the quality of the output, not only the speed.

Try it in practice

Compare two equipment options using the same product and batch size. List evidence for each claim and any cost that the quotation excludes.

LESSON 5 OF 6

Track each batch

Give each batch a unique reference and connect it to the supplier or field, receiving date, quantity, process record, packaging and customer delivery. Keep records simple enough to complete during real work. Do not mix unidentified material with a traceable batch.

Practise tracing a batch backwards to its source and forwards to customers. Record quantities so that unexplained losses or extra material are visible. A recall exercise can reveal missing handovers before a real problem occurs. Keep release decisions and rejected material clearly separated.

Try it in practice

Create a batch record for a small trial and ask a colleague to trace it without your help. Note what information was missing.

LESSON 6 OF 6

Verify value before scaling

Measure the quantity and quality of saleable output from the input batch. Include labour, energy, packaging, cleaning, testing and rejected material in the cost calculation. Processing can increase selling price while also adding costs and risks.

Obtain feedback on a representative sample and confirm the specification before committing to a larger order. A successful sample is not automatic approval of every future batch. Keep the process, acceptance evidence and customer feedback together so improvements are based on a complete record.

Try it in practice

Complete a small-batch review: input, saleable output, losses, cost, customer feedback and the next change to test.

WORKED EXAMPLE - ILLUSTRATIVE ONLY

Calculate conversion and cost using a trial batch

A hypothetical trial receives 100 kg of raw material and produces 18 kg of saleable dried product. Total recorded batch cost is USD 126. The values are illustrative, not a Moringa conversion standard.

1. Saleable conversion = 18 / 100 x 100 = 18%.

2. Recorded cost per saleable kilogram = 126 / 18 = USD 7.00.

3. If only 15 kg passes the agreed quality check, recorded cost per saleable kilogram becomes 126 / 15 = USD 8.40.

4. List any excluded overhead, finance or distribution costs before discussing a selling price.

What to take into your own plan

Measure the actual process. Never turn a training example into a promised drying ratio, shelf life or safety limit.

PRINT AND COMPLETE - WORKSHEET 1

Process and batch control worksheet

Name: _____ Date: _____

1. Product and customer specification

2. Process steps and responsible people

3. Relevant hazards and controls

4. Equipment capacity and operating costs

PRINT AND COMPLETE - WORKSHEET 2

Process and batch control worksheet

Name: _____ Date: _____

5. Batch reference and source

6. Input, output and rejected quantities

7. Checks, corrective actions and release

8. Trial result and scale-up decision

YOUR NEXT 30 DAYS

Turn learning into a small, useful result

Week 1 - establish the starting point

Complete the worksheet using dated observations and records. Mark facts, estimates and unanswered questions separately.

Week 2 - test one improvement

Choose one feasible action from the lessons. Name an owner, a completion date and the evidence you will collect.

Week 3 - check the result

Compare the result with your starting assumption. Record what changed, what did not and what else may have influenced the outcome.

Week 4 - share and decide

Discuss the evidence with your team. Keep, change or stop the action and record the next step.

Keep an evidence folder: completed worksheets, dated records, relevant photographs, calculations and a short reflection. Use permission before recording or sharing another person's information.

SELF-CHECK

Test your understanding

1. Does a high selling price prove value addition is profitable?

2. Can visual inspection prove food safety?

3. What determines practical throughput?

4. What should a batch number connect?

5. Why practise tracing a batch?

Write your own answer before reading the next page. Use the lesson activities to explain how you would apply the idea in a real enterprise.

SELF-CHECK ANSWERS

Compare and improve your reasoning

1. Does a high selling price prove value addition is profitable?

No. Compare saleable output and the full relevant costs.

2. Can visual inspection prove food safety?

No. Relevant hazards and controls need product-specific assessment.

3. What determines practical throughput?

The capacity of the process bottleneck under actual conditions.

4. What should a batch number connect?

Source material, processing, quality decisions, packaging and delivery.

5. Why practise tracing a batch?

To find gaps in records and handovers before a real incident.

SOURCES AND IMAGE CREDITS

Continue learning from reliable references

These references support the concepts used in the manual. Follow local requirements, product-specific guidance and the instructions of the relevant laboratory, authority or qualified adviser when applying technical practices.

FAO/WHO Codex: Codes of Practice, including General Principles of Food Hygiene

Open reference: www.fao.org

Codex Committee on Food Hygiene

Open reference: codex.fao.org

FAO: Small-Scale Postharvest Handling Practices

Open reference: www.fao.org

Image credit

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Original teaching examples, activities and worksheets prepared for Farmer's Pride International. Version 1.0, October 2026.