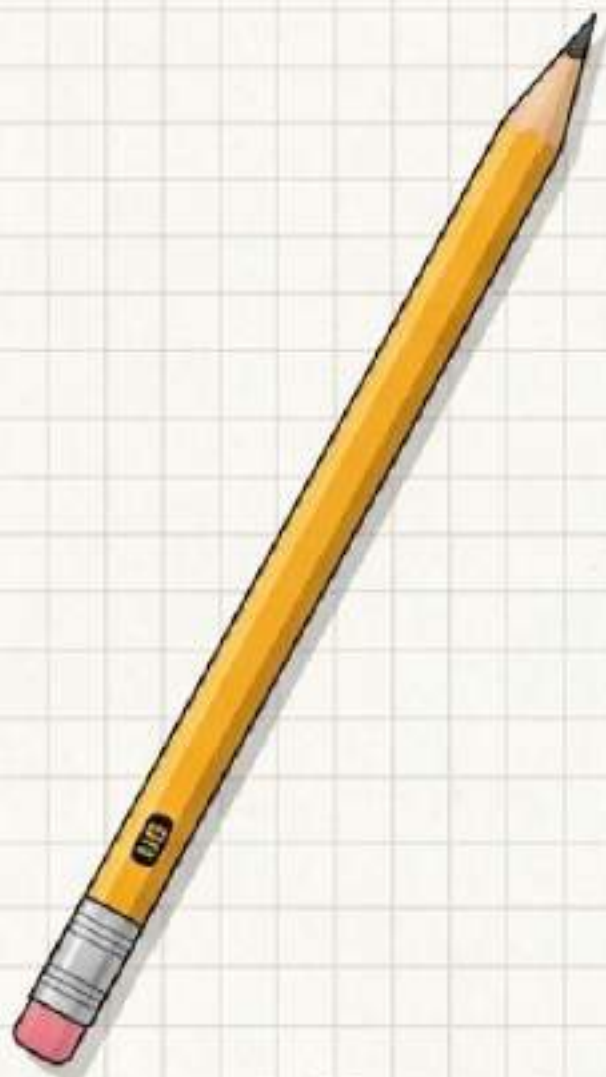




Cracking the UNEB Agriculture Practical

**An Examiner's Blueprint for
Acing Paper 2 (2025 Syllabus)**



The Field Scientist's Notebook

For Scorers' Use Only			
Item No.	Basis Code	Weighted Score	Scorers' Initials
1	A		
	HP		
	VR		
	AP		
	PR		
	DP		
	AN		
	CL		
2	RM		
	IF		
	ST		
	CR		

The Secret is on the Cover Page

Those blank lines inside the booklet aren't just blank space. Every code on the cover is a highly specific skill the examiner is hunting for.

A = Aim
HP = Hypothesis
VR = Variables

PR = Procedure
DP = Data Presentation

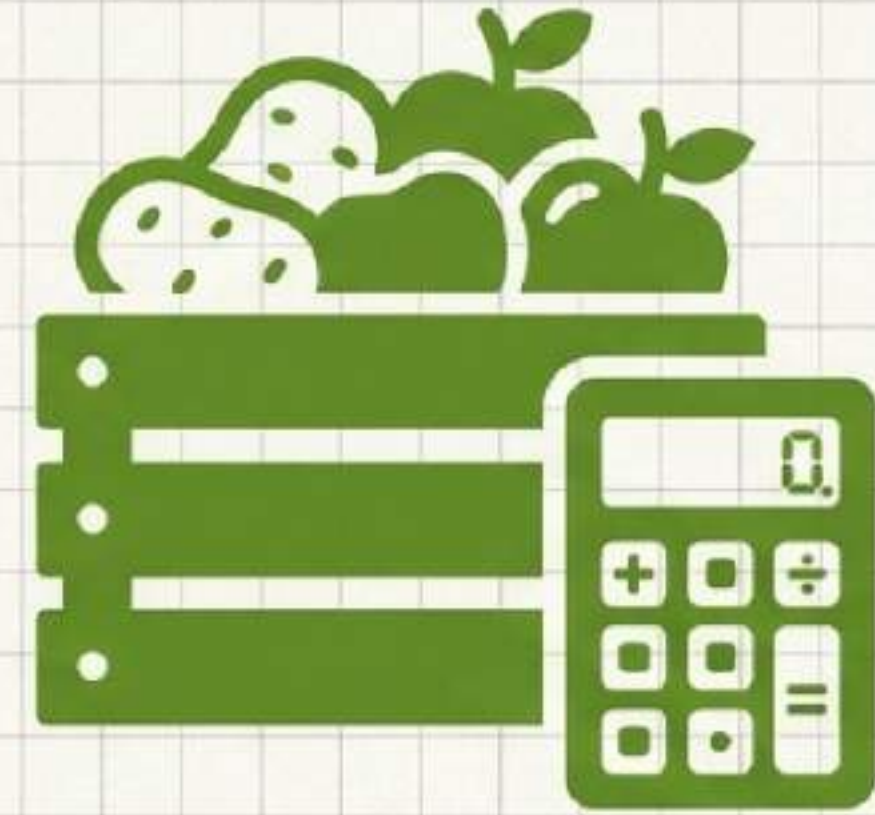
*CR = Conclusion /
Recommendations*

The Two Hats You Must Wear



Item 1: The Soil Scientist

Focuses on the Scientific Method, Investigation Setup, and Strict Laboratory Protocols. (Testing the 'Why').



Item 2: The Agribusiness Consultant

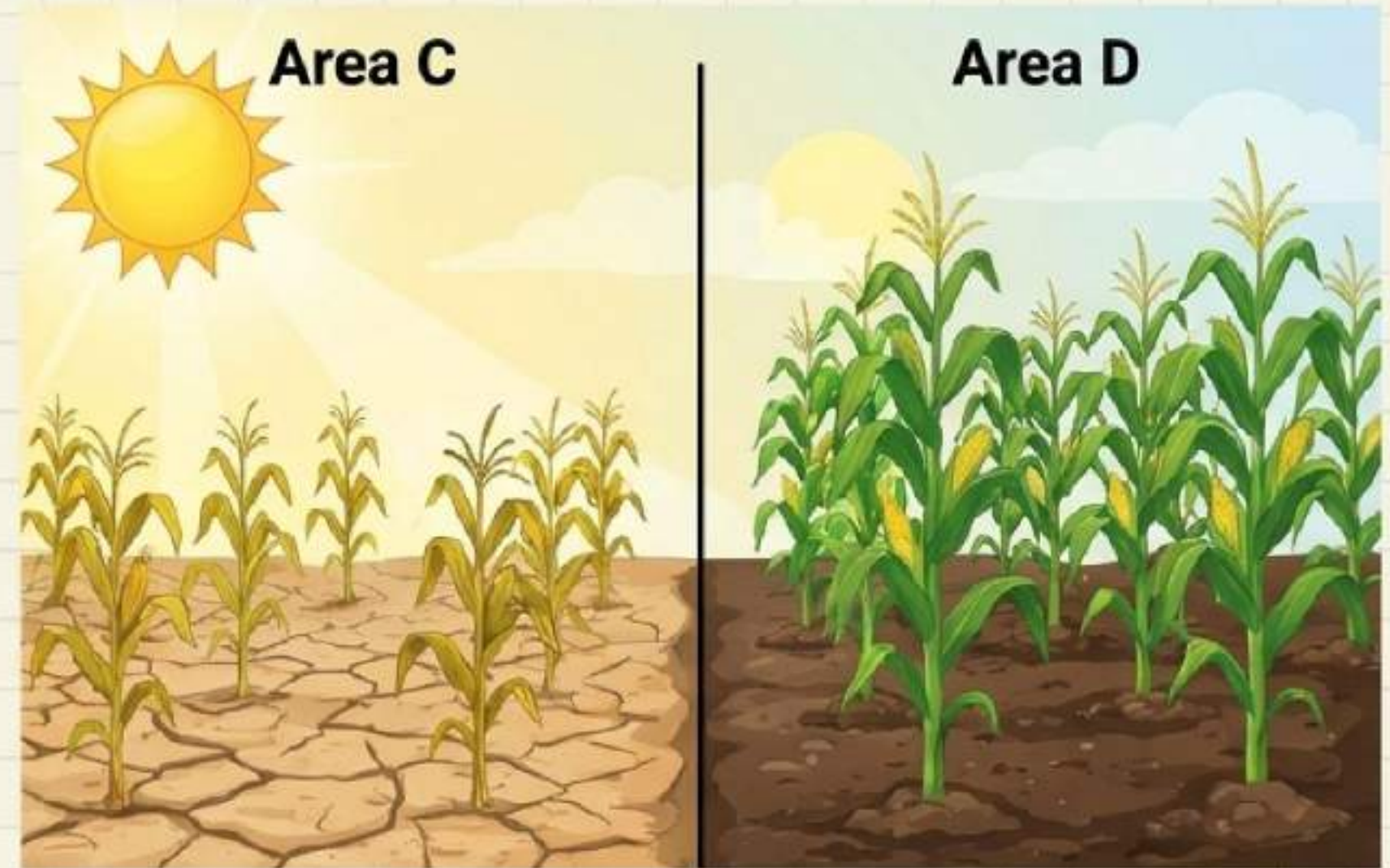
Focuses on Real-World Observation, Value Chain Diagnostics, and Practical Profitability. (Fixing the 'Now').

Item 1: The Case of the Wilting Crops

Ivan noticed that during the hottest part of the day, the crops in one part of his garden were stunted... The whole garden received the same amount of water, fertilizer... His neighbour suspects that the difference in crop growth... is due to the difference in soil particle sizes.

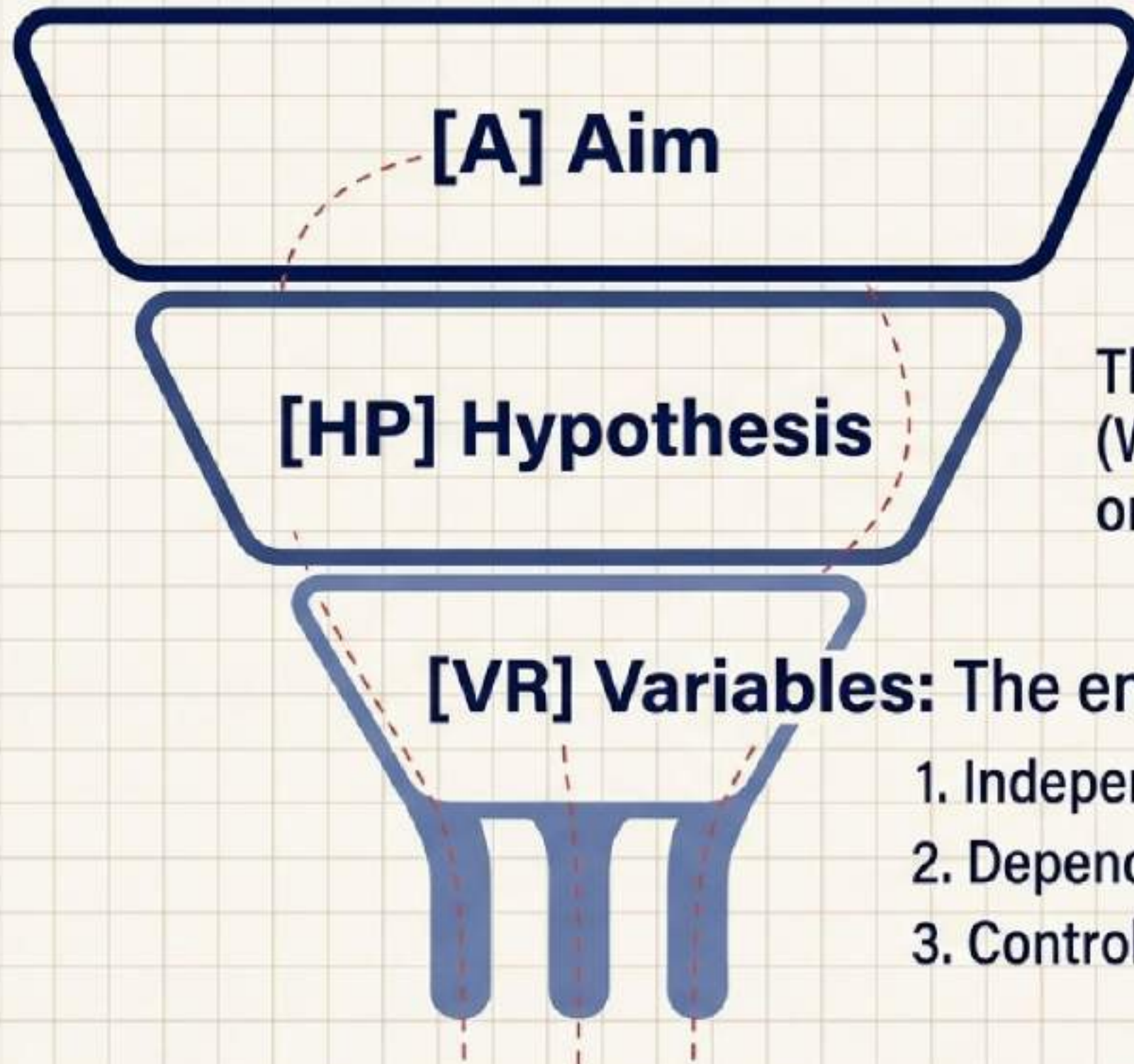
Diagnostic Breakdown

- **The Constant (CV):** Same water, fertilizer, and pest protection.
- **The Clue (IV):** Soil particle sizes.
- **The Problem (DV):** Wilting during high heat (points to water retention failure).



Examiner's Note: Never write a word until you have identified the independent variable (what changes) and the dependent variable (what you measure) hidden in the story!

Task (a): Structuring Your Setup



The 'To investigate...' statement.
(What exactly are you doing?)

The 'If... then...' statement.
(What is your educated guess based
on Ivan's story?)

- The engine of your experiment.
1. Independent (What you change)
 2. Dependent (What you measure)
 3. Controlled (What stays the same)

The Setup: Perfecting the Answer

Aim: To determine the water retention capacity of soil specimens C and D.



Hypothesis: Specimen C has larger soil particles (sandy) and therefore poor water retention, causing crops to wilt, whereas Specimen D has a good mixture of particles (loam) and retains adequate water.



Variables:

- Independent: Type of soil (Specimens C and D).
- Dependent: Volume of water retained.
- Controlled: Volume of dry soil used, volume of water added initially, time allowed for drainage.



Gathering Your Tools (AP)

2x Filter Funnels
(Must specify two for
a fair simultaneous
comparison)



Cotton wool
(To plug the funnels)

Beaker
(For measuring and
pouring water)



**2x Measuring
Cylinders**



Stopwatch / Clock
(For timing drainage)

Specimens C & D and Water



Specimen C



Specimen D



Examiner's Note: Listing
'a funnel' loses points. If you
are comparing two soils,
you need two funnels to
ensure identical timing!

Task (b): Writing the Procedure (PR)



Rule: Write like a recipe. Use imperative (command) verbs.



Step 1: Prep.

Plug the necks of the two filter funnels with equal amounts of cotton wool and place them into separate measuring cylinders.

Step 2: Load.

Place equal volumes (e.g., 50cm^3) of Specimen C and Specimen D into their respective funnels.

Step 3: Pour.

Pour equal volumes of water (e.g., 50cm^3) into both funnels at the exact same time.

Step 4: Measure.

Start the stopwatch. Leave to drain for 30 minutes, then record the volume of water collected in each cylinder.

Building a Bulletproof Data Table (DP)

The Golden Rules:

1. Always use a ruler.
2. Units go in the header, NEVER in the body cells.

Specimen	Volume of Water Added (cm ³)	Volume of Water Drained (cm ³)	Volume of Water Retained (cm ³)
C	50	40	10
D	50	20	30

Units stay up here!

Math must make sense! Added – Drained = Retained.

Examiner's Note: You must invent logical data that proves your hypothesis!

Analyzing the Evidence (AN)

The Perfect Analysis = Data Result + Scientific Reason + Link to Prompt

The "Surface-Level Student"



Specimen C retained 10cm^3 and D retained 30cm^3 . C is bad.

Zero marks for
missing the science.

The "Top-Tier Student"



Specimen C allowed the most water to drain, retaining only 10cm^3 . This indicates it has large macro-pores and large particle sizes (sandy soil), which explains why the water drains away too fast for crops. Specimen D retained more water, indicating a balanced particle size (loam) suitable for plant uptake.

Task (c): Closing the Case (CL, RM)



[CL] Conclusion

Specimen C has **poor water retention** due to large particle sizes (sandy), causing Ivan's crops to wilt, while D has **good water retention**.

[RM] Recommendations (How to fix Ivan's garden)

1. Add **well-rotted organic manure or compost** to the Specimen C area to bind particles and improve water-holding capacity.
2. Practice **heavy mulching in area C** to reduce moisture loss through evaporation during the hottest part of the day.
3. **Implement regular irrigation** specifically for the sandy section.

For Scorer's Use Only

Basis code	PR	DP	AN
Score			

For Scorer's Use Only

Basis code	CL	RM
Score		

Item 2: The Agribusiness Consultant

Item 2

Sophie owns a stall in a village market where she sells agricultural produce from her farm. Her stall used to be crowded with customers until recently when more than half of them stopped buying her produce. Sophie would like to improve the sales of her produce.

Specimens P, Q and R are samples of produce picked from her stall.

Specimens P, Q and R are samples of produce picked from her stall.

Task:

(a) Observe each specimen and describe its condition.

For Scorer's Use Only

Basis code	IF
Score	

(b) Suggest the causes of the condition you have described in each specimen.

For Scorer's Use Only

Basis code	ST
Score	



Mindset Shift: Step out of the lab. You are evaluating quality, handling, and market value.

Task (a): The Art of Observation (IF)

Specimen	Do Not Say (Zero Marks)	Say This (Max Marks)
 Specimen P	<i>It is bad.</i>	Has dark, sunken necrotic spots and soft rot on the skin.
 Specimen Q	<i>It looks ugly.</i>	The peel is heavily bruised, blackened, and physically crushed.
 Specimen R	<i>They are dead.</i>	Leaves have lost turgidity, appearing yellowish, drooping, and severely wilted.

Task (b): Tracing the Root Cause (ST)

Farm-to-Market Timeline



Specimen P
(Spots/Rot)



Specimen Q
(Bruising)



Specimen R
(Wilting)

Stage 1
The Field

Stage 2
Harvest

Stage 3
Transport

Stage 4
The Stall

Likely a **pre-harvest fungal infection** (e.g., blossom end rot or blight) or severe pest damage left unmanaged.

Poor post-harvest handling. Likely packed in deep sacks and crushed under excessive weight during transit.

Exposure to direct sunlight and high temperatures at the market stall causing rapid transpiration and moisture loss.

Task (c): The Turnaround Plan (CR)

(c) Advise Sophie on how to improve the sales of her produce.

For Scorer's Use Only

Basis code	CR
Score	

Consultant's Turnaround Plan

The Rule: Your solutions MUST match your diagnosed causes.



Strict Sorting (Fixes P): Grade and sort produce immediately. Remove diseased items so they don't spoil healthy stock and repel customers.

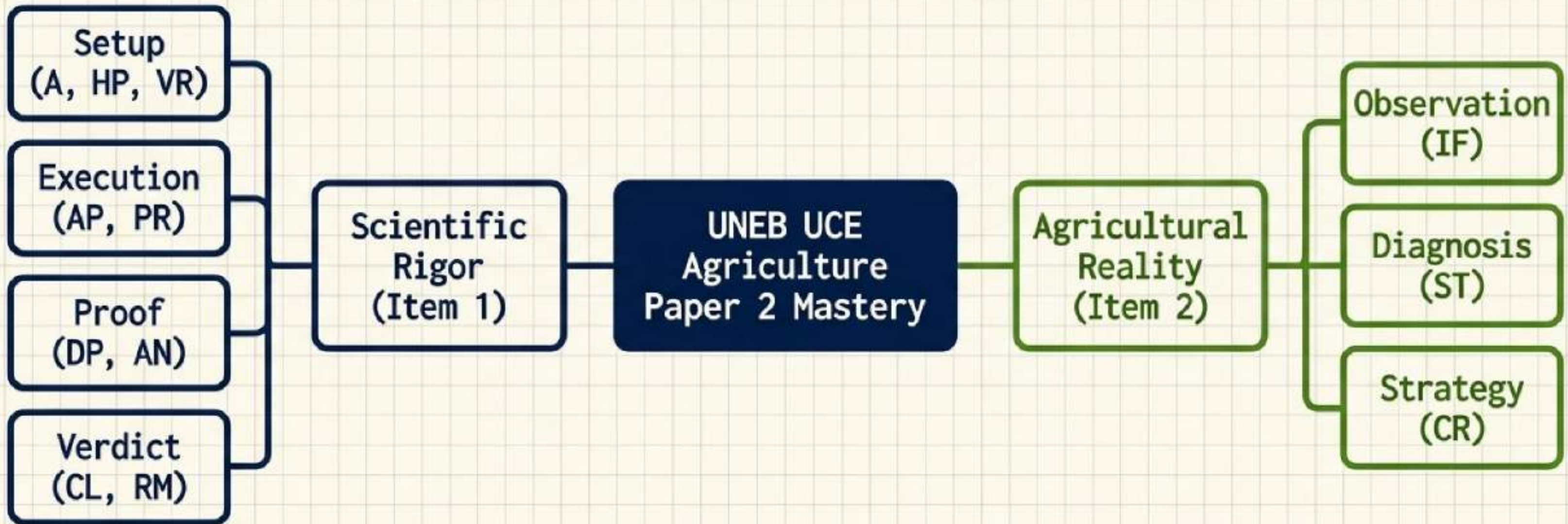


Upgraded Transport (Fixes Q): Stop using deep sacks. Pack delicate fruits in rigid, well-ventilated wooden or plastic crates to prevent mechanical damage.



Environmental Control (Fixes R): Construct a basic shade over the stall to protect produce from direct sun. Regularly sprinkle leafy greens with clean water to maintain turgidity.

The Master Framework



Perfect scores happen at the intersection. You must combine the strict rules of the laboratory with practical, profitable solutions for the Ugandan farmer.

Final Examiner Tips



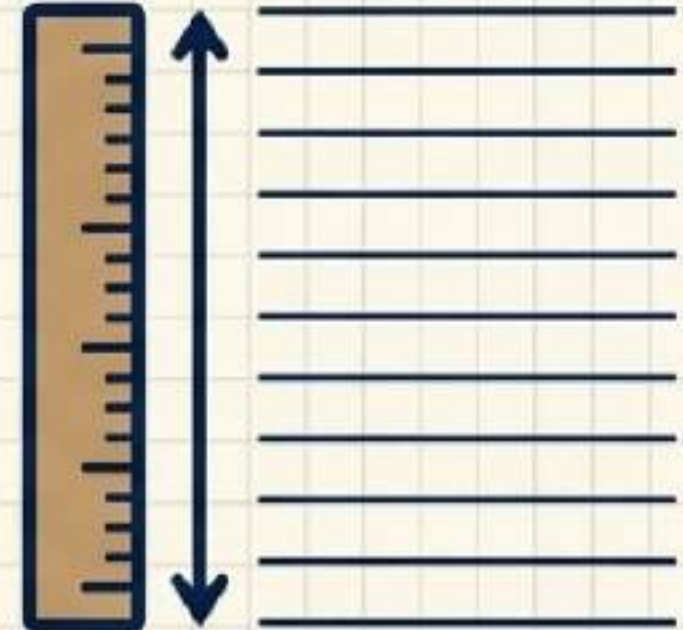
Draw boldly, strictly rule

Use a sharp pencil and ruler for all data tables. Freehand, pen-drawn lines signal a lack of scientific rigor and lose automatic points.



Elevate your vocabulary

Ban words like "good," "bad," and "nice" from your exam. Use "turgid," "permeable," "necrotic," and "retention."



Respect the blank space

The physical space provided is a major clue. If they give you 15 lines for a procedure, a 3-line answer is guaranteed to be incomplete. Fill the space with detail.