

INTERNSHIP SYLLABUS

Farming

A 90-hour field internship for undergraduate students, delivered in four stages: recorded lectures, an online assessment, geotagged field work, and a marked report. 6 modules, 6 of them in the field.

01	Bihar's Farming Systems	FIELD
02	Soil Health and Water	FIELD
03	Organic and Natural Farming	FIELD
04	Seeds, Nurseries and Nutrition Gardens	FIELD
05	Plant Protection and Farmer Extension	FIELD
06	Markets, Collectives and Government Support	FIELD



EthnoMedico
— Agro Botanical Research Society



Sustainable agriculture and agro-botany for undergraduates of every stream, run alongside the farmer training camps of Ethno Medico Agro Botanical Research Society, Bakhtiyarpur, Patna.

F A R M I N G

Part I: Programme document



1. Why this subject, why now

Most rural households in Bihar depend on farming, yet holdings are small and fragmented, the north floods and the south dries. The state's Fourth Krishi Road Map (2023 to 2028), launched on 18 October 2023 with an outlay of about Rs 1.64 lakh crore, plans crop diversification, climate-resilient practice, storage and digital farming. Nationally, the Cabinet approved the National Mission on Natural Farming in November 2024 to reach one crore farmers through 10,000 Bio-input Resource Centres and 30,000 Krishi Sakhis. Soil Health Cards, the 10,000 FPO scheme, e-NAM and PM-KISAN form a support ecosystem that most farmers know only in fragments.

What is missing is people who can read a Soil Health Card to a farmer in Magahi or Maithili, set up a nutrition garden at an Anganwadi, keep the records an FPO needs, or write down what a KVK scientist said at a camp so that it outlives the afternoon. Agriculture graduates are few and are absorbed by industry and government. Undergraduates of History, Commerce, Zoology or Hindi who spend 90 hours in fields, soil pits, nurseries and mandis become that missing layer. Ethno Medico, an agro-botanical research society associated with ICAR, already runs farmer training camps around Patna. This internship attaches students to that work.



2. Who it is for, and outcomes

Eligible streams: all undergraduate programmes of the partner universities. **Prerequisites:** none. Students who have never held a khurpi are expected. Basic Hindi is sufficient; Magahi, Maithili, Bhojpuri or Angika help.

By the end of the internship a student will be able to:

1. Describe the kharif, rabi and zaid calendar of a Bihar farm and the rice-wheat, maize, pulse, vegetable and horticultural systems within it. (Understand)
2. Collect a composite soil sample by the Soil Health Card protocol and interpret the twelve parameters on a card. (Apply)
3. Build a compost or vermicompost unit and prepare Jeevamrit and Beejamrit from farm materials. (Apply)
4. Raise a vegetable nursery and lay out a kitchen or nutrition garden that gives a family or school year-round vegetables. (Apply, Create)
5. Distinguish the components of integrated pest management and judge when a pest problem needs intervention. (Analyse)
6. Document a farmer training camp so that its content and reception can be evaluated by someone who was absent. (Analyse, Evaluate)
7. Conduct a mandi price survey and explain what an FPO, a Kisan Credit Card, PM-KISAN and Bihar's own schemes offer a specific household. (Apply, Evaluate)
8. Write a field report that separates observation from inference and cites its sources. (Create)



3. At a glance

MODULE	TITLE	TYPE	HOURS	FIELD TASK IN ONE LINE
1	Bihar's Farming Systems	Field	15	Farm visit and cropping calendar interview with one farmer
2	Soil Health and Water	Field	15	Composite soil sampling of one field by the Soil Health Card protocol
3	Organic and Natural Farming	Field	15	Build a compost or vermicompost pit and prepare Jeevamrit
4	Seeds, Nurseries and Nutrition Gardens	Field	15	Raise a nursery bed or set up a kitchen garden at a school or home
5	Plant Protection and Farmer Extension	Field	15	Attend and document a KVK or Ethno Medico farmer training camp
6	Markets, Collectives and Government Support	Field	15	Price and arrival survey at a mandi or haat

Total 90 hours. All six modules are field modules, each split Learn 6 h, Test 1 h, Do 6 h, Report 2 h.



4. How the four stages apply to this subject

Learn. Six hours per module of recorded lectures and reading, recorded by Ethno Medico faculty and by KVK or university scientists who agree to contribute; several belong in a field or compost yard rather than a studio. Readings draw on ICAR, KVK, Bihar Agricultural University (BAU Sabour), Dr Rajendra Prasad Central Agricultural University (RPCAU Pusa) and Government of India scheme material. A lecture completes at 80 percent watch time.

Test. One 20-question MCQ test per module, 30 minutes, single attempt, unlocked when all lectures are complete.

Do. Farming follows seasons, so the portal assigns a district and, where possible, a village cluster where Ethno Medico or a partner KVK is active, and gives each task a window of several weeks with a note on seasonal sense (a nursery bed in April is for kharif vegetables; in October, for rabi). Every task ends in geotagged photographs of the student doing the work, checked against the assigned area with a tolerance of a few kilometres, because farms are not addresses.

Report. A structured report of 600 to 1,000 words per module in the supplied format. The six feed the final report (Section 7).



5. Assessment and grading

COMPONENT	PER MODULE	ACROSS SIX MODULES
MCQ test	15	90
Field evidence (geotag, completeness, task done as specified)	15	90
Module report (rubric)	20	120
Final report (Appendix C)		100
Total		400

Grade bands on the percentage of 400: A+ 90 and above; A 80 to 89; B 70 to 79; C 60 to 69; D 50 to 59; F below 50. To pass: 50 percent overall, at least 40 percent in each module, and accepted field evidence for all six tasks. A rejected geotag (wrong location, student absent from frame, stock image) returns the task once; a second rejection fails the module. Certificates carry the grade and a QR code.

6. Field work: ethics, safety, permissions

Consent. Ask the farmer, nursery owner, trader or camp organiser before photographing. Children appear only with a parent's or head teacher's spoken consent and never identifiably in a report. Never photograph land records, passbooks or Aadhaar, even when offered as proof of scheme enrolment; note the scheme, not the number.

Safety. No student handles a synthetic pesticide, fungicide or seed-dressing chemical: observe and record, never mix or spray. Do not enter a field within the spraying interval the farmer states. Closed shoes in fields and straw heaps, where snakes and scorpions are real. Carry water; no field work between 12 and 3 pm from April to June. Do not enter ponds or makhana tanks, operate a tractor, thresher, pump or chaff cutter, or climb litchi and mango trees. Report any injury to the coordinator the same day.

Whom to inform. Village task: the mukhiya or ward member and the farmer. Soil sampling: the landowner. School garden: the head teacher, and the Anganwadi sevika at an AWC. KVK camp: the KVK programme coordinator, through Ethno Medico. Mandi: the market office or trader association where one exists. Students work in pairs or with Ethno Medico field staff wherever the coordinator can arrange it.



7. Final report format

The final report (2,500 to 3,500 words, Appendix A) is titled "One Farm, One Season: a field study of farming in [block], [district], Bihar". It integrates the six module reports around the single household visited in Module 1: its calendar, soil result, compost and garden interventions, what it knows about pest management and schemes, and what the mandi survey means for its main crop. It closes with three costed recommendations for the household and one for the university's outreach.



8. Skills built and career pathways (India)

Skills: field observation and interviewing, soil sampling, compost and bio-input preparation, nursery and garden management, event documentation, price data collection and spreadsheet analysis, scheme literacy, report writing.

Pathways: Krishi Sakhi and community resource person roles under JEEVIKA (Bihar Rural Livelihoods Promotion Society) and NMNF; FPO staff and CBBO roles under the 10,000 FPO scheme; seed and agri-input company field roles; contractual ATMA block technology manager posts; agri-extension and agribusiness postgraduate study at BAU Sabour and RPCAU Pusa; CSR and NGO programme roles in agriculture and nutrition; rural journalism; e-NAM and agri-fintech service providers; the state's Krishi Clinic and Bihar Rajya Beej Nigam supply chains.



9. Alignment: NEP 2020, UGC internship guidelines, NAAC criteria, SDGs

- **NEP 2020:** experiential learning, community engagement and vocational exposure inside the degree, here in the state's largest employer.
- **UGC internship guidelines:** 60 to 120 hours for 2 to 4 credits under NHEQF and CCFUP; this 90-hour programme sits in that band and is assessed on evidence and reports, not attendance.
- **NAAC:** Criterion 3 (extension and collaboration with a registered NGO and KVKs), Criterion 1 (sustainability as a cross-cutting issue), Criterion 5 (student skills and progression).
- **SDGs:** 2, 12, 13, 15, 1 and 4.

10. Benchmarks consulted

- 1. ICAR Fifth Deans' Committee, Rural Agricultural Work Experience (RAWE).** A 20-credit final-year programme for BSc (Agriculture) with a village attachment of eight weekly activities: village survey, agronomy, plant protection, soil sampling and testing, fruit and vegetable production, food processing and storage, animal production, extension. Adapted: our six modules follow this sequence, compressed to 90 hours, without the agronomic prerequisite, and with each "intervention" made into a task a non-agriculture student can do. Report: http://chfcau.org.in/sites/default/files/pdf-page/Report_of_the_ICAR_Fifth_Deans'_Committee.pdf ; BUAT RAWE Manual: https://buat.edu.in/wp-content/uploads/2022/09/RAWE-Manual_BUAT-Final.-130922.pdf
- 2. Krishi Vigyan Kendra training (KVK Patna at Agwanpur, Barh, under ICAR ATARI Patna):** on-farm testing, frontline demonstrations and training for farmers, rural youth and functionaries in soil health, IPM, organic input production and mushroom cultivation. Adapted: Module 5's field task and the soil and organic-input content of Modules 2 and 3. <https://patna.kvk4.in/mandate-activity.php> ; <https://icar.org.in/en/krishi-vigyan-kendras>
- 3. National Mission on Natural Farming and Paramparagat Krishi Vikas Yojana.** NMNF trains farmers to prepare Jeevamrit and Beejamrit and supplies inputs through Bio-input Resource Centres; PKVY works in 20-hectare clusters with PGS-India certification. Adapted: Module 3. <https://naturalfarming.dac.gov.in/> ; <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2082783>
- 4. Soil Health Card sampling protocol.** Composite sampling at 0 to 15 cm, V-shaped cut, grids of 2.5 ha irrigated and 10 ha rainfed, twelve parameters. Adapted directly as Module 2's task. <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/aug/doc2025816613501.pdf>
- 5. BAU Sabour and RPCAU Pusa extension.** BAU's Directorate of Extension Education runs 22 KVKs, chaupals, kisan goshtis, field days and soil testing; RPCAU's Directorate of Extension runs 18 KVKs. Adapted: district partners for Module 5 and the



agro-climatic zone frame of Module 1. <https://bausabour.ac.in/director-education-extension.aspx> ;

<https://rpcau.ac.in/academics/departments/department-of-extension-education/>

6. FAO Farmer Field School. Season-long, group-based discovery learning built on weekly Agro-Ecosystem

Analysis, comparative plots and a field day. Adapted: the AESA sheet in Module 5 and the observe, draw,

decide habit in every task. <https://www.fao.org/farmer-field-schools/overview/en/> ;

<https://resources.peopleinneed.net/documents/356-fao-2007-farmers-field-school-methodology-training-of-trainers-man>

7. 72-hour Permaculture Design Course core curriculum (PINA; Permaculture Association UK v2.3): ethics,

zones and sectors, soil, water, guilds, final design project. Adapted: the zone-and-sector sketch in Module 4

and the household-centred final report. <https://pina.in/wp-content/uploads/2015/02/CoreCurriculum.pdf> ;

https://www.permaculture.org.uk/sites/default/files/page/document/pdf.core_curriculum_2.3_march_2018.pdf

FARMING

Part II: Modules



MODULE 1

Bihar's Farming Systems

FIELD

15 HOURS

Overview and learning outcomes

The student learns to read a Bihar farm: its zone, seasons, crops and constraints. Outcomes: name the three agro-climatic zones and place the assigned district; draw a kharif-rabi-zaid calendar for one household; describe the rice-wheat system and its alternatives; explain why litchi, mango and makhana matter to particular districts; conduct a respectful semi-structured interview.

Hour allocation

Learn 6 h (lectures 3.5, reading 2.5). Test 1 h. Do 6 h (travel and one farm visit, a second short visit if needed). Report 2 h.

STAGE 01 · LEARN

LECTURES

1. **Bihar in three zones** (35 min). North-West Alluvial Plain (Zone I), North-East Alluvial Plain (Zone II), South Alluvial Plain (Zone III A and III B); flood-prone north, drought-prone south; calcareous soils, tal and diara lands; which districts fall where; how BAU Sabour and RPCAU Pusa divide the zones.
2. **The calendar: kharif, rabi, zaid** (40 min). Monsoon onset and paddy transplanting; the cost of wheat sown late after late paddy; zaid vegetables and moong; how a farmer chooses among wheat, maize, lentil and mustard; the festival markers farmers actually use.
- 3.



Rice-wheat and its alternatives (40 min). Why rice-wheat dominates the Indo-Gangetic plain; falling organic carbon and water tables under it; direct seeded rice, zero-till wheat, System of Rice Intensification; rabi maize in north Bihar; pulses and oilseeds as diversification under the Fourth Krishi Road Map.

4. **Horticulture as identity** (40 min). Shahi litchi of Muzaffarpur (GI 2018) and its belt of East Champaran, Vaishali, Samastipur and Begusarai; mango belts of Bhagalpur and Digha; Mithila Makhana (GI 2022) in the ponds and low fields of Darbhanga, Madhubani, Purnea and Katihar; the Makhana Board announced in Union Budget 2025-26; how a horticultural crop's economics differ from a cereal's.
5. **Interviewing a farmer** (35 min). Open questions; the calendar grid as an interview tool; recording landholding class (marginal under 1 ha, small 1 to 2 ha) without asking for documents; sharecropping (bataidari) and what it does to investment; ending with what the farmer wants to know from you.

READING MATERIAL

- A: Bihar agriculture at a glance, from the Fourth Krishi Road Map summary (PIB) and the BAMETI state profile.
- B: Agro-climatic zones and district contingency plans (BAU Sabour), listing each district's soils, rainfall and crop options.
- C: Cropping systems of the eastern Gangetic plain: a two-page primer on rice-wheat, maize and pulses, with KVK Patna's frontline demonstration list as an example of local priorities.
- D: GI-tagged crops of Bihar: Shahi litchi, Mithila Makhana, the Makhana Board.
- E: The cropping calendar interview grid (months across, plots down; cells for crop, variety, sowing, harvest, irrigation, main input, main problem, buyer).

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes, four per lecture. Sample questions (correct answer starred):



Q1 Bihar's Zone II is the

- a. South-West Alluvial Plain
- b. North-East Alluvial Plain**
- c. Chotanagpur plateau
- d. Tal region

Q2 A zaid season crop in Bihar is

- a. wheat
- b. transplanted paddy
- c. moong**
- d. mustard

Q3 Shahi litchi received its GI tag in

- a. 2006
- b. 2012
- c. 2018**
- d. 2022



Q4 Mithila Makhana is grown mainly in

- a. ponds and low-lying fields
- b. upland sandy soils
- c. river islands
- d. forest margins

Q5 A marginal farmer holds

- a. under 1 ha
- b. 1 to 2 ha
- c. 2 to 4 ha
- d. over 4 ha

Q6 Late paddy transplanting most directly causes

- a. higher maize yield
- b. late wheat sowing and lower wheat yield
- c. more litchi flowering
- d. lower soil pH



Q7 The Fourth Krishi Road Map covers

- a. 2018 to 2023
- b. 2020 to 2025
- c. 2023 to 2028**
- d. 2025 to 2030

Q8 In a semi-structured interview the interviewer should

- a. read questions verbatim only
- b. use open questions and follow the answers**
- c. avoid notes
- d. ask for land documents

Q9 Bataidari means

- a. contract farming
- b. sharecropping**
- c. cooperative marketing
- d. crop insurance



Q10 Rabi maize is prominent in

- a. north Bihar
- b. the Kaimur plateau only
- c. the forest belt
- d. nowhere in Bihar

STAGE 03 · FIELD WORK

Do

Task. Visit one farm household in the assigned block, walk its main plots with the farmer, and fill the cropping calendar grid for the past twelve months and the coming season. Record landholding class, irrigation source, crops and varieties, inputs, main problems, where produce is sold, and which schemes the household says it uses. Sketch the farm.

Location and assignment. A village in the student's home or college district, matched by the portal to a cluster where Ethno Medico or a KVK is active; otherwise any farm the student can reach, with the farmer's consent recorded.

Steps. (1) Inform the mukhiya or ward member; fix a morning time with the farmer. (2) Walk the plots before sitting down; note crop, stage, weeds, water. (3) Fill the grid month by month with the farmer. (4) Ask five whys: why this crop, variety, time, input, buyer. (5) Sketch the layout with north arrow, water source, homestead, cattle. (6) Ask what the farmer wants to know; keep it for Module 5. (7) Agree to return for soil sampling in Module 2.

Evidence. Geotagged photographs: the student with the farmer at the field edge; the student in a standing crop or on a bund; the filled grid held up in the field; the farm sketch; the irrigation source. Minimum five, the student visible in at least three.

Safety and consent. Spoken consent for photographs; no documents; closed shoes; no entry within a stated spraying interval.

STAGE 04 · REPORT

Sections: (1) The household and farm (150 words). (2) The calendar as a table with a paragraph of interpretation (250). (3) Constraints named by the farmer, ranked (150). (4) What surprised you against the lectures (150). (5) Questions carried to later modules (100).

Rubric (20): grid completeness 6; consistency and accuracy 4; interpretation 5; sketch 2; writing and citation 3.

Glossary

Agro-climatic zone; kharif; rabi; zaid; rice-wheat system; diara land; tal land; bataidari; marginal farmer; direct seeded rice; Geographical Indication; cropping calendar.

References

- PIB, President launches the Fourth Krishi Road Map of Bihar, 18 October 2023:
<https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1968711>
- BAMETI, Status of Agriculture in Bihar: <https://www.bameti.org/wp-content/uploads/2021/02/State-Profile.pdf>
- BAU Sabour, District Agriculture Contingency Plan (Aurangabad example):
<https://bausabour.ac.in/Contingency-Plan-pdf/Aurangabad.pdf>
- Scroll.in, Shahi litchi from Bihar gets GI tag, 2018:
<https://scroll.in/latest/898736/shahi-litchi-from-bihar-gets-geographical-indication-tag>
- Drishti IAS, GI tag for Mithila Makhana (2022):
<https://www.drishtiiias.com/daily-updates/daily-news-analysis/gi-tag-for-mithila-makhana>
- PIB, State-specific announcements in Union Budget 2025-26 (Makhana Board):
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2098516>
- DD News, India is the world's largest makhana producer with about 80 percent global share:
<https://ddnews.gov.in/en/india-is-worlds-largest-makhana-producer-with-80-global-share/>

MODULE 2

Soil Health and Water

FIELD

15 HOURS

Overview and learning outcomes

Soil is the one asset a small farmer cannot buy more of. Outcomes: explain the twelve Soil Health Card parameters in plain language; collect a composite sample by the scheme protocol; read a card's recommendation for the Module 1 farm; describe Bihar's water situation and low-cost water-saving practice.

Hour allocation

Learn 6 h. Test 1 h. Do 6 h (sampling, labelling, delivery to a KVK or state lab). Report 2 h.

STAGE 01 · LEARN

LECTURES

1. **What soil is and why Bihar's differs** (35 min). Texture, structure, organic matter; Gangetic alluvium; calcareous soils of the north-west; waterlogging and salinity; the signs a student can read in a field.
2. **The Soil Health Card scheme** (40 min). Launched 2015, "Swasth Dharaa, Khet Haraa"; twelve parameters (N, P, K, S; Zn, Fe, Cu, Mn, B; pH, EC, organic carbon); grids of 2.5 ha irrigated and 10 ha rainfed; sampling after harvest; the crop-wise recommendation; the portal and the lab network including KVK labs.
3. **Sampling protocol** (35 min). Khurpi, bucket, cloth, label; 15 to 20 subsamples in a zigzag; V-shaped cut to 15 cm; avoid bunds, manure heaps, trees, wet patches; quarter to 500 g; label with farmer, plot, date, crops; what invalidates a sample.
- 4.



Reading the card back to a farmer (35 min). Low, medium, high; what "organic carbon low" means in practice; urea-only fertilisation and its harm; the Fertiliser (Control) Order 1985 and bag labels; balanced use, neem-coated urea, micronutrient correction.

5. **Water on a Bihar farm** (40 min). Groundwater and diesel pumps; the state's Diesel Anudan for kharif irrigation and Krishi Input Anudan after loss; canals and the ahar-pyne systems of south Bihar; flood recession farming in the north; alternate wetting and drying, laser levelling, mulching, drip for vegetables; water as a cost line in the Module 1 calendar.

READING MATERIAL

- A: Soil Health Card explainer (PIB 2025) with an annotated sample card.
- B: Sampling checklist and label template, one page.
- C: The twelve parameters without chemistry: what each does for a plant, two lines each.
- D: Water: Diesel Anudan and Krishi Input Anudan as listed on the Bihar Agriculture DBT portal; a primer on water-saving practice from ICAR and KVK material.
- E: The Fertiliser (Control) Order 1985 in one page: grades, labelling, farmer entitlements.

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes. Lecture 1: 3; 2: 5; 3: 5; 4: 4; 5: 3.

Q1 The Soil Health Card scheme was launched in

- a. 2005
- b. 2010
- c. 2015
- d. 2020





Q2 Sampling depth for field crops is

- a. 0 to 5 cm
- b. 0 to 15 cm**
- c. 30 to 45 cm
- d. 60 cm

Q3 The sampling grid in irrigated areas is

- a. 0.5 ha
- b. 2.5 ha**
- c. 10 ha
- d. 25 ha

Q4 A micronutrient on the card is

- a. nitrogen
- b. potassium
- c. zinc**
- d. sulphur



Q5 Samples should not be taken

- a. from the field centre
- b. near bunds, trees and manure heaps**
- c. along a zigzag
- d. at 15 cm

Q6 EC on the card indicates

- a. organic carbon
- b. salinity**
- c. texture
- d. drainage

Q7 Quartering is used to

- a. dry the sample
- b. reduce a bulk sample to about 500 g representatively**
- c. measure pH
- d. count earthworms



Q8 Fertiliser grades and labels are governed by

- a. the Seeds Act 1966
- b. the Fertiliser (Control) Order 1985**
- c. the Insecticides Act 1968
- d. the Essential Services Act

Q9 Alternate wetting and drying saves water in

- a. wheat
- b. paddy**
- c. litchi
- d. lentil

Q10 Ahar-pyne systems belong to

- a. north Bihar floodplains
- b. south Bihar**
- c. the Kosi delta
- d. Mithila ponds

STAGE 03 · FIELD WORK

Do

Task. Collect one composite sample from the main plot of the Module 1 household by the Soil Health Card protocol, label it, and hand it to the nearest KVK or state soil testing lab, or to Ethno Medico for onward testing. If no result



arrives before the deadline, use the household's existing card or the latest card for that village on the portal, and say which.

Location and assignment. The Module 1 farm, ideally after harvest or in a fallow window; the portal flags the season.

Steps. (1) Confirm consent; choose the plot. (2) Walk a zigzag; at 15 to 20 points scrape litter, cut a V to 15 cm, take a uniform slice from the V wall into the bucket. (3) Break clods, remove roots and stones, mix. (4) Quarter to about 500 g. (5) Shade-dry if wet. (6) Bag with a label inside and out: farmer, village, plot, date, previous and next crop. (7) Deliver; note the receipt. (8) With the farmer, read whichever card is available, three sentences per parameter.

Evidence. Geotagged photographs: the student cutting a V with khurpi visible; the zigzag marked with sticks or drawn on a photo; the bucket of mixed subsamples; the quartered sample; the labelled bag held by student and farmer; the lab or handover point. Minimum six.

Safety and consent. Landowner consent; wash hands before eating; no sampling in flooded or recently sprayed fields.

STAGE 04 · REPORT

Sections: (1) Plot and sampling record with label data (150 words). (2) Deviations from protocol and why (100). (3) The card: parameter table with Low/Medium/High and a plain-language reading (300). (4) What the farmer applies versus the recommendation (150). (5) Water: sources, cost per irrigation, one saving practice proposed (150).

Rubric (20): protocol fidelity in evidence 6; card interpretation 6; fertiliser comparison 4; water 2; writing 2.

Glossary

Composite sample; V-shaped cut; quartering; organic carbon; pH; electrical conductivity; macronutrient; micronutrient; neem-coated urea; alternate wetting and drying; ahar-pyne; calcareous soil.

References





PIB, Soil Health Card backgrounder, August 2025:

<https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/aug/doc2025816613501.pdf>

- Soil Health Card portal: <https://soilhealth.dac.gov.in/>
- Bihar Agriculture DBT portal: <https://dbtagriculture.bihar.gov.in/>
- KVK Patna, mandate and activities: <https://patna.kvk4.in/mandate-activity.php>
- Department of Fertilizers (Fertiliser (Control) Order 1985): <https://fert.nic.in/>

MODULE 3

Organic and Natural Farming

FIELD

15 HOURS

Overview and learning outcomes

Bihar has cattle and crop residue in abundance, which are the raw materials of low-cost fertility. Outcomes: distinguish certified organic farming (PKVY, PGS-India, NPOP) from natural farming (NMNF); build a compost or vermicompost unit; prepare Jeevamrit and Beejamrit; state honestly what is and is not proven about yields; explain how a farmer joins a PKVY cluster or reaches an NMNF Bio-input Resource Centre.

Hour allocation

Learn 6 h. Test 1 h. Do 6 h (two visits: construction, then inspection). Report 2 h.

STAGE 01 · LEARN

LECTURES

1. **Organic, natural, sustainable** (35 min). Organic as a certified system with permitted inputs (NPOP for export, PGS-India for domestic, FSSAI's Jaivik Bharat mark); natural farming as low-external-input practice built on cow-based inputs, mulching and intercropping; sustainable agriculture as the umbrella; what each claims and what the evidence supports.
2. **Composting and vermicomposting** (40 min). Carbon to nitrogen balance; heap versus pit; moisture and turning; 45 to 90 days; vermicompost with *Eisenia fetida*, shade, bedding, harvesting; where farm women already do this; using compost against the Module 2 recommendation.
3. **Jeevamrit, Beejamrit, Ghanjeevamrit** (40 min). The recipe reported in the literature: about 10 kg cow dung, 10 litres cow urine, 1.5 to 2 kg jaggery, 1.5 to 2 kg pulse flour, a handful of soil, made up to 200 litres and



fermented in shade with daily stirring; Beejamrit for seed; solid Ghanjeevamrit; Neemastra; rates, timing, hygiene.

4. **PKVY and NMNF** (40 min). PKVY clusters of about 20 ha, Rs 31,500 per ha over three years with part paid by DBT for inputs, PGS-India certification; NMNF approved 25 November 2024, Rs 2,481 crore to 2025-26, one crore farmers on 7.5 lakh ha, 10,000 Bio-input Resource Centres, 2,000 model farms at KVKs and universities, 30,000 Krishi Sakhis; how a Bihar farmer or SHG enters either.
5. **Honest accounting** (25 min). Transition-year yield dips; labour; cattle access as a precondition; premium versus local markets; what a student should and should not tell a farmer.

READING MATERIAL

- A: Definitions from NPOP, PGS-India (National Centre for Organic and Natural Farming) and the NMNF portal.
- B: Compost and vermicompost method sheet in KVK training style, with a pit drawing and a troubleshooting table (smell, flies, dryness, ants).
- C: Natural farming input recipes with sources, including the Jeevamrit study cited below.
- D: PKVY and NMNF summaries from PIB with the steps to join.
- E: Evidence note: two pages on what peer-reviewed work says about soil and yields under natural farming, and its limits.

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes. Lecture 1: 4; 2: 5; 3: 5; 4: 4; 5: 2.



Q1 PGS-India is

- a. an export certification
- b. a participatory guarantee system for domestic organic produce**
- c. a seed standard
- d. crop insurance

Q2 The earthworm used in vermicomposting is

- a. Eisenia fetida**
- b. Apis mellifera
- c. Bombyx mori
- d. Lumbricus rex

Q3 Jeevamrit is made up to about

- a. 20 litres
- b. 200 litres**
- c. 2,000 litres
- d. 2 litres



Q4 Beejamrit is used for

- a. foliar spray only
- b. seed treatment**
- c. composting
- d. weed control

Q5 A PKVY cluster is about

- a. 2 ha
- b. 20 ha**
- c. 200 ha
- d. 2,000 ha

Q6 PKVY assistance per hectare over three years is

- a. Rs 3,150
- b. Rs 31,500**
- c. Rs 3,15,000
- d. Rs 315



Q7 NMNF was approved by Cabinet in

- a. 2015
- b. 2019
- c. 2022
- d. 2024



Q8 Bio-input Resource Centres exist to

- a. sell chemical fertiliser
- b. supply ready natural inputs like Jeevamrit
- c. issue Soil Health Cards
- d. run mandis



Q9 A compost heap smelling of ammonia is most likely

- a. too dry
- b. nitrogen-rich and poorly aerated
- c. too cold
- d. finished





Q10 FSSAI's organic mark is

- a. Agmark
- b. Jaivik Bharat**
- c. ISI
- d. Hallmark

STAGE 03 · FIELD WORK

Do

Task. Build a compost pit or vermicompost bed at the Module 1 farm, the student's home or a school, and prepare one batch of Jeevamrit (a 20-litre scaled batch is acceptable). Return after two to three weeks to turn or inspect and photograph.

Location and assignment. Any of the three; the farm is preferred so the compost reaches the sampled plot.

Steps. (1) Choose shade near water, away from the house. (2) Pit about 1 m by 1 m by 0.6 m, or a raised bed under thatch for vermicompost. (3) Layer chopped residue, dung slurry, kitchen waste and a little soil; water to wrung-sponge moisture. (4) For vermicompost, add worms from a KVK or neighbour once the bed cools. (5) Ferment Jeevamrit in a plastic drum in shade, stirring twice daily for a week. (6) Keep a log of dates, materials, quantities. (7) Return: turn, check moisture, photograph.

Evidence. Geotagged photographs: the student digging or laying out the pit; layers with materials visible; the covered pit; the student stirring the drum with ingredients beside it; the return visit showing decomposition or worms; the log sheet. Minimum six across two dates.

Safety and consent. Site owner's consent; gloves for dung; wash hands; children away from the pit edge; drum covered against mosquitoes.

STAGE 04 · REPORT

Sections: (1) Site and design with sketch (150 words). (2) Materials log (table plus 100). (3) What happened over three weeks (200). (4) Jeevamrit preparation and the farmer's intended use (150). (5) Would this household gain from PKVY or NMNF, and what would stop them (200).

Rubric (20): construction evidence across two dates 6; log accuracy 4; observation 4; scheme analysis 4; writing 2.

Glossary

Organic farming; natural farming; PGS-India; NPOP; Jaivik Bharat; compost; vermicompost; Jeevamrit; Beejamrit; Ghanjeevamrit; Bio-input Resource Centre; Krishi Sakhi.

References

- PM India, Launch of National Mission on Natural Farming:

https://www.pmindia.gov.in/en/news_updates/launch-of-national-mission-on-natural-farming/

- NMNF portal: <https://naturalfarming.dac.gov.in/>

- PIB, Paramparagat Krishi Vikas Yojana: <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2082783>

- Vikaspedia, PKVY:

<https://en.vikaspedia.in/viewcontent/agriculture/policies-and-schemes/crops-related/krishi-unnnati-yojana/paramparagat-kr>

- Application of Jeevamrit Improves Soil Properties in Zero Budget Natural Farming Fields, Agriculture 2023, 13(1), 196: <https://www.mdpi.com/2077-0472/13/1/196>

- Ghan-jeevamrit discs, Indian Farming (ICAR): <https://epubs.icar.org.in/index.php/IndFarm/article/view/174347>

- FAO Agroecology Knowledge Hub, NMNF entry: <https://fao.org/agroecology/database/detail/en/c/1730544>

MODULE 4

Seeds, Nurseries and Nutrition Gardens

FIELD

15 HOURS

Overview and learning outcomes

Everything begins with a seed and a bed. Outcomes: explain seed classes and the Seeds Act 1966; describe seed saving and replacement; raise a vegetable nursery; lay out a kitchen garden with a zone-and-sector sketch; connect a nutrition garden to Poshan Vatika and School Nutrition Garden guidelines; list ten vegetables for a Bihar garden by season.

Hour allocation

Learn 6 h. Test 1 h. Do 6 h (two visits: preparation and sowing, then follow-up). Report 2 h.

STAGE 01 · LEARN

LECTURES

1. **Seed: classes, law, rights** (35 min). Breeder, foundation, certified and truthfully labelled seed; the Seeds Act 1966 and what a label must state; the Protection of Plant Varieties and Farmers' Rights Act 2001 and the right to save, use and exchange seed; Bihar Rajya Beej Nigam; seed replacement rate as an idea.
2. **Saving and treating seed at home** (30 min). Field selection, drying, storage in earthen or airtight containers, neem and ash traditions, the wet-cloth germination test, Beejamrit.
3. **Raising a nursery** (40 min). Raised beds 1 m wide, fine tilth, compost; depth and spacing for tomato, brinjal, chilli, cabbage, cauliflower, onion; shade and watering; damping-off and its prevention; hardening; transplanting; the paddy nursery as the same principles at scale.
- 4.



The kitchen garden as a designed system (40 min). Site, sun, water, fencing; zones (daily greens nearest, fruit trees farthest) and sectors (sun, wind, flood direction) borrowed from permaculture design; a twelve-month Bihar plan: spinach, amaranth, methi, coriander, radish, carrot, brinjal, okra, cowpea, bottle gourd, bitter gourd, pumpkin, drumstick, papaya, lemon; intercropping and succession.

5. **Nutrition gardens and public programmes** (35 min). Poshan Vatika at Anganwadi centres (about 1,000 square feet recommended, with greens, moringa, papaya, lemon, amla) under Mission Saksham Anganwadi and Poshan 2.0; the School Nutrition (Kitchen) Garden guidelines of 15 October 2019 under what is now PM POSHAN; why such gardens fail (fencing, water, ownership) and what a student can do.

READING MATERIAL

- A: Seeds Act 1966 and PPV&FR Act 2001 in plain language, two pages.
- B: Nursery and kitchen garden method sheet with a Bihar seasonal planting chart.
- C: Zone-and-sector sketch template with a worked example for a 10 m by 10 m school corner.
- D: Poshan Vatika guidance (PIB) and the School Nutrition Garden guidelines (PM POSHAN portal), extracted.
- E: Which garden crops address which deficiencies, from Poshan Abhiyaan material.

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes. Lecture 1: 4; 2: 3; 3: 5; 4: 4; 5: 4.

Q1 Certified seed is produced from

- a. breeder seed directly
- b. foundation seed**
- c. any saved seed
- d. imported seed only



Q2 A farmer's right to save and exchange seed is protected by

- a. the Seeds Act 1966
- b. the PPV&FR Act 2001**
- c. the Insecticides Act 1968
- d. the Essential Commodities Act 1955

Q3 A home germination test uses

- a. a wet cloth and counted seeds**
- b. a microscope
- c. a soil kit
- d. a pH meter

Q4 Damping-off is mainly caused by

- a. too much sun
- b. fungal infection in wet, crowded beds**
- c. cold
- d. earthworms



Q5 Hardening means

- a. heavy fertilising
- b. gradually reducing water and shade before transplanting**
- c. darkness
- d. root trimming

Q6 In a zone plan, daily-picked greens go

- a. farthest from the house
- b. nearest the house**
- c. on the boundary
- d. under trees

Q7 A Poshan Vatika is recommended at

- a. mandis
- b. Anganwadi centres**
- c. railway stations
- d. banks



Q8 School Nutrition Garden guidelines were issued in

- a. 2009
- b. 2015
- c. 2019**
- d. 2023

Q9 Drumstick is valued in nutrition gardens for

- a. starch
- b. leaves rich in iron and vitamins**
- c. oil
- d. fibre only

Q10 Bihar Rajya Beej Nigam is

- a. a seed corporation**
- b. a bank
- c. a mandi
- d. a research institute

STAGE 03 · FIELD WORK

Do

Task. Either raise a nursery bed of at least 1 m by 3 m for a seasonal vegetable, or set up a kitchen or nutrition garden of at least 25 square metres at a school, Anganwadi or home with at least six species from the seasonal chart. Draw a zone-and-sector sketch before planting; record establishment two to three weeks later.



Location and assignment. A government school or Anganwadi in the assigned block, arranged through the head teacher or sevika, is preferred; a home garden is acceptable.

Steps. (1) Secure consent and agree who waters after you leave. (2) Observe sun, water, drainage and wind; draw the sketch. (3) Clear, dig, add compost (Module 3 compost if ready), raise beds. (4) Sow or plant; label rows. (5) Fence with local material if animals roam. (6) Leave a one-page Hindi care sheet with the caretaker. (7) Return: germination count, replacements, photographs.

Evidence. Geotagged photographs: site before; the student digging or shaping beds; the sketch held at the site; sowing or planting; labelled rows; the care sheet with the caretaker (adults, with consent); seedlings on the return visit. Minimum seven across two dates.

Safety and consent. Head teacher or sevika consent; children not identifiable; tools handled by the student; no chemical seed dressing.

STAGE 04 · REPORT

Sections: (1) Site analysis with sketch (150 words). (2) Planting plan: species, dates, spacing (table plus 100). (3) Establishment on return (150). (4) Who owns this garden now and what will keep it alive (150). (5) Poshan Vatika or School Nutrition Garden norms and what the institution needs to comply (150).

Rubric (20): design 5; execution across two dates 6; establishment record 4; sustainability plan 3; writing 2.

Glossary

Breeder seed; foundation seed; certified seed; truthfully labelled seed; seed replacement rate; germination test; nursery bed; damping-off; hardening; zone and sector; succession planting; Poshan Vatika.

References

- PIB, Poshan Vatikas or Nutri-gardens: <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1912577>



- PM POSHAN portal, guidelines (including School Nutrition (Kitchen) Gardens, 2019):

<https://pmposhan.education.gov.in/guideline.html>

- National Medicinal Plants Board, Poshan Vatika guidelines:

<https://nmpb.nic.in/sites/default/files/Final%20Poshan%20vatika%20Guidelines%2016-12-25.pdf>

- Mission Saksham Anganwadi and Poshan 2.0 guidelines:

<https://cdnbbsr.s3waas.gov.in/s34c144c47ecba6f8318128703ca9e2601/uploads/2024/12/202412111663461918.pdf>

- PINA, Permaculture Design Course core curriculum:

<https://pina.in/wp-content/uploads/2015/02/CoreCurriculum.pdf>

- Seeds Act 1966 and PPV&FR Act 2001, India Code: <https://www.indiacode.nic.in/>

MODULE 5

Plant Protection and Farmer Extension

FIELD

15 HOURS

Overview and learning outcomes

Pests, diseases and weeds are where farmers spend fastest and where wrong advice harms most. The module also shows how knowledge reaches farmers: KVKs, ATMA, BAMETI, JEEVIKA, input dealers and NGO camps. Outcomes: explain IPM and the economic threshold; recognise common pests from images; use the FAO Farmer Field School AESA sheet; map a district's extension system; document a camp so that it can be evaluated.

Hour allocation

Learn 6 h. Test 1 h. Do 6 h (a half-day camp plus preparation and follow-up). Report 2 h.

STAGE 01 · LEARN

LECTURES

1. **Integrated pest management** (40 min). Cultural, mechanical, biological and, last, chemical control; economic threshold level; scouting; sticky, pheromone and light traps; Trichogramma and other biocontrol; neem; the Insecticides Act 1968 and label colour codes; why students here never spray.
2. **Pests and diseases you will see** (40 min). Stem borer, brown planthopper and blast in paddy; rust and aphid in wheat; fall armyworm in maize; pod borer in gram and pigeonpea; brinjal fruit and shoot borer; gourd fruit fly; litchi fruit borer; mango hopper; weeds. Image recognition only.
3. **The Farmer Field School and AESA** (35 min). FAO's season-long, group-based discovery learning; weekly Agro-Ecosystem Analysis: observe plant, pests, natural enemies, weather, soil, weeds; draw; decide; present; comparative plots; the field day; what a single farm visit can borrow.



4. **Who tells farmers what** (35 min). ICAR ATARI Patna and the KVK network (22 under BAU Sabour, 18 under RPCAU Pusa); on-farm testing, frontline demonstrations, training for farmers, youth and functionaries; ATMA at district and block; BAMETI; Kisan Call Centre 1800-180-1551; JEEVIKA cadres; input dealers as the most frequent advisers; NGOs; where messages conflict.
5. **Documenting a camp** (30 min). Before, during, after; agenda; who came (count, gender, landholding if offered); demonstrations; questions asked; what farmers said they would do; photographs that inform rather than pose.

READING MATERIAL

- A: IPM primer from ICAR and KVK training modules with a pest recognition sheet (Hindi and English names).
- B: Insecticides Act 1968 and label colour codes, one page.
- C: FAO FFS overview and the AESA sheet as a template.
- D: The extension map of a Bihar district: KVK, ATMA, BAMETI, JEEVIKA, Kisan Call Centre, dealers, NGOs.
- E: Camp documentation format (photographs in Appendix B).

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes. Lecture 1: 5; 2: 4; 3: 4; 4: 4; 5: 3.

Q1 In IPM, chemical control is

- a. the first resort
- b. the last resort
- c. never used
- d. weekly



Q2 Economic threshold level is

- a. the pesticide price
- b. the pest density at which control cost equals expected loss**
- c. the MSP
- d. a soil parameter

Q3 Trichogramma is

- a. a fungicide
- b. an egg parasitoid used in biocontrol**
- c. a weed
- d. a fertiliser

Q4 Fall armyworm is a major pest of

- a. maize**
- b. litchi
- c. lentil
- d. makhana



Q5 Pesticide labels in India carry

- a. a colour triangle for toxicity**
- b. a QR code only
- c. no warning
- d. a GI mark

Q6 AESA stands for

- a. Agricultural Extension Services Act
- b. Agro-Ecosystem Analysis**
- c. Annual Seed Audit
- d. Area Sown Estimate

Q7 A Farmer Field School typically runs

- a. one afternoon
- b. a whole crop season**
- c. one week
- d. three years



Q8 KVKs in Bihar are hosted by

- a. BAU Sabour and RPCAU Pusa among others ☒
- b. private banks
- c. FPOs
- d. panchayats

Q9 The Kisan Call Centre number is

- a. 1800-180-1551 ☒
- b. 100
- c. 1091
- d. 14416

Q10 Good camp documentation records

- a. only the speaker's name
- b. who came, what was shown, what was asked, what farmers said they would do ☒
- c. only photographs
- d. only the lunch

STAGE 03 · FIELD WORK

Do

Task. Attend one farmer training camp, kisan goshthi, field day or frontline demonstration run by a KVK, ATMA, BAU, RPCAU or Ethno Medico, and document it. Before the camp, complete one AESA sheet at the Module 1 farm so you carry a real question; afterwards, tell that farmer what was said.



Location and assignment. Ethno Medico lists its camps on the portal by district; KVK events come through the programme coordinator. The coordinator confirms the event.

Steps. (1) AESA at the farm: 30 minutes on one crop; record pests, natural enemies, weather, soil, weeds; draw the plant; decide your question. (2) Arrive early; note venue, organiser, agenda, resource persons. (3) Count attendance at start and end, noting women and youth. (4) Record each session in a few lines; photograph demonstrations. (5) Collect three farmer questions and the answers. (6) Ask your own. (7) Relay the relevant content to the Module 1 farmer. (8) Complete the documentation format.

Evidence. Geotagged photographs: the student at the venue with banner or organiser; the audience from behind; a demonstration with the student present; the filled AESA sheet at the farm; the student with the resource person (consent); the attendance note. Minimum six.

Safety and consent. Organiser's consent for photography; no identifiable farmers without asking; no pesticide handling.

STAGE 04 · REPORT

Sections: (1) AESA sheet and your question (150 words plus sheet). (2) The camp: organiser, agenda, attendance (150). (3) Content, session by session (250). (4) Farmer questions, answers, and what was missing (200). (5) What you relayed and the farmer's reaction (150).

Rubric (20): AESA quality 4; documentation completeness 6; critical assessment 6; follow-up 2; writing 2.

Glossary

Integrated pest management; economic threshold level; biocontrol; pheromone trap; Trichogramma; fall armyworm; Agro-Ecosystem Analysis; Farmer Field School; frontline demonstration; on-farm testing; ATMA; kisan goshthi.

References

- FAO, Global Farmer Field School Platform: <https://www.fao.org/farmer-field-schools/overview/en/>



- FAO (2007), FFS Methodology: Training of Trainers Manual:

<https://resources.peopleinneed.net/documents/356-fao-2007-farmers-field-school-methodology-training-of-trainers-manual>

- ICAR, Krishi Vigyan Kendras: <https://icar.org.in/en/krishi-vigyan-kendras>
- KVK Patna, mandate and activities: <https://patna.kvk4.in/mandate-activity.php>
- BAU Sabour, Directorate of Extension Education: <https://bausabour.ac.in/director-education-extension.aspx>
- RPCAU Pusa, Department of Extension Education:
<https://rpcau.ac.in/academics/departments/departments-of-extension-education/>
- Insecticides Act 1968, India Code: <https://www.indiacode.nic.in/>

MODULE 6

Markets, Collectives and Government Support

FIELD

15 HOURS

Overview and learning outcomes

A crop is not income until it is sold. Outcomes: describe Bihar's markets after the 2006 repeal of its APMC Act; read Agmarknet and e-NAM price data; run a mandi survey; explain FPOs and the 10,000 FPO scheme; explain PM-KISAN, KCC, PMFBY and Bihar's Fasal Sahayata, input and diesel schemes; audit which of these the Module 1 household uses and could use.

Hour allocation

Learn 6 h. Test 1 h. Do 6 h (a market-day visit plus data entry). Report 2 h.

STAGE 01 · LEARN

LECTURES

- 1. How a crop is sold in Bihar** (40 min). The Bihar Agricultural Produce Markets (Repeal) Act 2006 and its consequences: few regulated markets, village traders and aggregators, thin public procurement; PACS procurement of paddy and wheat at MSP; haats; the spread between farm gate and Patna wholesale; storage and distress sale.
- 2. Price information** (30 min). Agmarknet's daily minimum, maximum and modal prices and arrivals from more than 4,000 markets; e-NAM, launched 14 April 2016, as online trading across integrated mandis; reading a price series; MSP and its limits in Bihar.
- 3. Farmer collectives** (40 min). Cooperatives, PACS, SHGs and JEEVIKA; FPOs as producer companies or cooperatives; the 10,000 FPO scheme launched 29 February 2020 with Rs 6,865 crore, matching equity grant



up to Rs 2,000 per member capped at Rs 15 lakh per FPO, credit guarantee, five years of handholding by Cluster Based Business Organisations through NABARD, SFAC and NCDC; what an FPO does month to month; why many stay on paper.

4. **Central support for the household** (40 min). PM-KISAN (Rs 6,000 a year in three instalments, first paid 24 February 2019, Aadhaar-seeded account); Kisan Credit Card (interest subvention plus prompt repayment incentive bringing effective interest to 4 percent; the subvention limit raised to Rs 5 lakh in Budget 2025-26); PMFBY (farmer premium capped at 2 percent kharif, 1.5 percent rabi, 5 percent horticultural) and Bihar's exit from it in 2018.
5. **Bihar's own schemes** (30 min). Bihar Rajya Fasal Sahayata Yojana (premium-free; Rs 7,500 per ha for loss up to 20 percent, Rs 10,000 per ha above 20 percent, up to 2 ha, through the Cooperative Department); Krishi Input Anudan after weather damage; Diesel Anudan for kharif irrigation; seed subsidy through Bihar Rajya Beej Nigam; the Agriculture DBT portal as single window; applying without a smartphone (CSC, PACS).

READING MATERIAL

- A: Bihar's marketing after 2006 (Down To Earth and Business Standard reporting; the Repeal Act).
- B: Reading Agmarknet: a worked month of paddy prices for a Patna district market, with the survey sheet.
- C: FPO scheme summary (PIB, SFAC) and a one-page "what an FPO can do for a 1 ha farmer".
- D: Scheme cards: PM-KISAN, KCC, PMFBY, BRFSY, Krishi Input Anudan, Diesel Anudan, each with eligibility, benefit, where to apply, source.
- E: Interviewing a trader: what to ask and what not to.

STAGE 02 · TEST

Blueprint: 20 MCQs, 30 minutes. Lecture 1: 4; 2: 3; 3: 5; 4: 5; 5: 3.



Q1 Bihar repealed its APMC Act in

- a. 1991
- b. 2006**
- c. 2014
- d. 2020

Q2 Modal price on Agmarknet is

- a. the highest price
- b. the price at which most trade happened**
- c. the MSP
- d. the mean of min and max

Q3 e-NAM was launched in

- a. 2010
- b. 2014
- c. 2016**
- d. 2020



Q4 The 10,000 FPO scheme was launched in

- a. 2015
- b. 2018
- c. 2020**
- d. 2023

Q5 The FPO equity grant is capped per FPO at

- a. Rs 1.5 lakh
- b. Rs 15 lakh**
- c. Rs 1.5 crore
- d. Rs 15 crore

Q6 FPOs are handheld for five years by

- a. Cluster Based Business Organisations**
- b. panchayats
- c. input dealers
- d. KVKs only



Q7 PM-KISAN pays

- a. Rs 2,000 a year
- b. Rs 6,000 a year in three instalments**
- c. Rs 12,000 a year
- d. Rs 6,000 a month

Q8 Effective interest on a KCC crop loan with prompt repayment is

- a. 0 percent
- b. 4 percent**
- c. 7 percent
- d. 12 percent

Q9 Bihar's scheme in place of PMFBY is

- a. Bihar Rajya Fasal Sahayata Yojana**
- b. Bihar Fasal Bima Yojana
- c. Krishi Clinic Yojana
- d. Makhana Vikas Yojana



Q10 Under BRFSY, assistance for loss above 20 percent is

- a. Rs 5,000 per ha
- b. Rs 7,500 per ha
- c. Rs 10,000 per ha**
- d. Rs 20,000 per ha

STAGE 03 · FIELD WORK

Do

Task. On a market day, survey one mandi, wholesale market or large haat: for at least eight commodities including the Module 1 household's main crop, record minimum, maximum and prevailing price, unit, approximate arrivals and stated source from three traders. Compare with Agmarknet for the same or nearest market and date. Ask two selling farmers what they received and what they paid in commission, weighing or transport.

Location and assignment. The nearest wholesale market to the assigned block (in Patna district, for instance, a Bazar Samiti market or a block haat). The portal lists market days where known.

Steps. (1) Inform the market office or trader association if one exists. (2) Arrive at peak arrival, usually early morning. (3) Walk the whole market; list commodities. (4) Ask three traders per commodity; record price, unit, arrivals, origin. (5) Interview two selling farmers. (6) Photograph price boards or weighing. (7) That evening, pull Agmarknet data for the nearest listed market and note differences.

Evidence. Geotagged photographs: the student at the market entrance or name board; the student with a trader at a heap or shop (consent); a weighing or price board; the filled survey sheet in the market; the two farmer interviews (adults, consent, or note-only if declined); a screenshot of the Agmarknet page with the date visible. Minimum six.

Safety and consent. Traders and farmers consent to being quoted; no photographs of cash or account books; keep clear of trucks; go in pairs where possible.



STAGE 04 · REPORT

Sections: (1) The market: location, day, scale, governance (150 words). (2) Price and arrival table with Agmarknet comparison (table plus 150). (3) What two sellers received and paid (150). (4) What an FPO could change for the Module 1 household, concretely (200). (5) Scheme audit: uses, eligible but not using, and why (250).

Rubric (20): survey completeness and accuracy 6; Agmarknet comparison 3; farmer interviews 3; FPO analysis 4; scheme audit 4.

Glossary

APMC; Repeal Act 2006; modal price; arrivals; Agmarknet; e-NAM; MSP; PACS; FPO; producer company; CBBO; equity grant; PM-KISAN; Kisan Credit Card; PMFBY; Bihar Rajya Fasal Sahayata Yojana.

References

- Down To Earth, Bihar scrapped APMC Act, mandi system 14 years ago:
<https://www.downtoearth.org.in/agriculture/bihar-scrapped-apmc-act-mandi-system-14-years-ago-here-s-what-it-did-to-far>
- Business Standard, Bihar mandis after repeal of APMC Act, December 2024:
<https://www.business-standard.com/industry/agriculture/bihar-mandis-in-deplorable-state-after-repeal-of-apmc-act-report>
- Agmarknet: <https://agmarknet.gov.in/>
- PIB, Agmarknet and e-NAM empower farmers with real-time mandi price information:
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2204750>
- e-NAM: <https://enam.gov.in/>
- PIB, Central Sector Scheme for 10,000 FPOs: <https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1696547>
- PIB, 10,000 FPOs achieved: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2106913>
- SFAC, FPO scheme: <https://sfacindia.com/FPOS.aspx>
- PIB, Pradhan Mantri Kisan Samman Nidhi: <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1946816>
-



PM-KISAN portal: <https://pmkisan.gov.in/>

- PIB, Operative KCC amount crosses Rs 10 lakh crore (effective 4 percent interest):

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2106230>

- Business Standard, Budget 2025: KCC limit raised from Rs 3 lakh to Rs 5 lakh:

<https://www.business-standard.com/budget/news/budget-2025-kisan-credit-card-limit-increased-from-rs-3-to-5-lakh-12502>

- PIB, Benefits to farmers under PMFBY (premium rates):

<https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1738233>

- PIB, States opting out from PMFBY: <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1906871>

- Krishi Jagran, Bihar Rajya Fasal Sahayata Yojana guide:

<https://krishijagran.com/agriculture-world/bihar-rajya-fasal-sahayata-yojna-a-complete-guide/>

- Bihar Cooperative Department, PACS online (BRFSY applications): <https://pacsonline.bih.nic.in/>

- Bihar Agriculture DBT portal: <https://dbtagriculture.bihar.gov.in/>

F A R M I N G

Appendix



A. Final report template

Title: One Farm, One Season: a field study of farming in [block], [district], Bihar. Student, roll number, university, stream, field dates, household name (with consent) or pseudonym.

1. Introduction: household, village, zone (250 words).
2. Cropping calendar and farming system (Module 1) (400 plus grid).
3. Soil and water (Module 2): card, reading, current practice (400 plus table).
4. Fertility interventions (Module 3): compost unit, Jeevamrit, intended use (300).
5. Seeds and the garden (Module 4): seed practice on the farm; the garden and its status (300).
6. Plant protection and information (Module 5): what the farmer does, what the camp said, the gap (300).
7. Markets and support (Module 6): where the main crop goes, price evidence, scheme audit (400).
8. Three recommendations for the household, each costed in rupees and hours, and one for the university's outreach (300).
9. Reflection (200).
10. References and annexes: six module reports, photographs by module, consent notes.

Length 2,500 to 3,500 words excluding annexes.

B. Field evidence checklist

Every task: the student visible in at least half the photographs; geotag within the assigned area; date stamp on the day claimed; no stock or downloaded images; other people only with consent; no documents, cash or bank details in frame.

- Module 1: student with farmer at field; student in crop or on bund; calendar grid in the field; farm sketch; irrigation source.
- Module 2: V cut with khurpi; zigzag path; mixed bucket; quartered sample; labelled bag with student and farmer; lab or handover point.
- Module 3 (two dates): pit or bed under construction; layers with materials; covered pit; Jeevamrit drum being stirred with ingredients; return-visit decomposition; log sheet.
- Module 4 (two dates): site before; beds being made; sketch at site; sowing; labelled rows; care sheet with caretaker; seedlings on return.
- Module 5: venue with banner; audience from behind; demonstration with student; AESA sheet at farm; student with organiser; attendance note.
- Module 6: market entrance; student with trader; weighing or price board; survey sheet in market; farmer interviews; Agmarknet screenshot with date.



C. Rubric for the final report

CRITERION	MARKS
Integration: six modules cohere around one household and one season	20
Accuracy and evidence: tables, photographs and sources support every claim	20
Analysis: causes, comparison with lectures and benchmarks, honest limits	20
Recommendations: feasible, costed, specific to household and university	20
Writing and ethics: clarity, structure, citations, consent recorded	10
Reflection	10
Total	100