



PART 2

Read the text below and answer questions 14–26.

AGROECOLOGY: FARMING WITH NATURE

A

Agroecology is commonly defined as the application of ecological principles to the design and governance of agricultural systems, but the term implies more than a checklist of “greener” techniques. It rejects the monocultural paradigm in which yields are maintained primarily through external inputs—synthetic fertilisers, broad-spectrum pesticides, and uniform crop genetics—while the surrounding landscape is treated as a controllable backdrop. By contrast, agroecology treats farms as living ecosystems whose productivity emerges from synergistic interactions: nutrient cycling mediated by soil organisms, habitat structures that stabilise microclimates, and biological relationships that suppress pests. In this framing, sustainability is not achieved merely by substituting one input for a less harmful one, but by reconfiguring the farm so that biological processes perform functions previously purchased from chemical markets.

B

The claimed benefits of agroecology are therefore multi-dimensional, and they are often discussed in terms of resilience rather than short-term maximisation. Diverse systems tend to buffer climate shocks by spreading exposure across species and by altering local conditions that shape plant stress. Soils with higher organic content can retain moisture longer during dry spells, while shaded and wind-protected plots may reduce heat stress during extreme events. Economically, proponents argue that lower dependence on purchased inputs can improve viability, particularly when fertiliser and pesticide prices rise or become volatile. However, the economic logic is not uniform: savings may be offset by higher labour, greater management complexity, or the need for new processing and marketing arrangements. In sociological terms, agroecology is often described as a knowledge-intensive pathway that shifts value from commodity inputs to skill, observation, and locally adapted decision-making.

C

At the centre of agroecological redesign is spatial arrangement—how organisms are positioned in relation to one another so that diversity becomes functional rather than decorative. Polyculture exemplifies this logic by growing multiple crops together or in rotational mosaics, increasing structural complexity and reducing the likelihood that a single failure becomes total loss. Agroforestry extends diversification vertically and temporally by integrating trees with crops or livestock. Trees modify wind and temperature,



provide shade, and generate leaf litter that feeds soil biota; they can also yield secondary products such as fruit, fodder, or timber, creating additional income streams. Importantly, these practices operate through interaction effects: the goal is not simply to add species, but to arrange them so that roots, canopy cover, and nutrient demands complement one another across space and seasons.

D

Soil and water form a tight mechanical loop in agroecology because water retention capacity is largely a property of soil structure. Practices that increase organic matter—composting, mulching, maintaining diverse root systems, and reducing disturbance—can improve aggregation, which increases infiltration and reduces surface runoff. The result is not merely “healthier soil” in the abstract, but a physical change in how rainfall is handled: water is absorbed and stored rather than rapidly shed, and erosion pressure is reduced, especially on sloped land or during intense storms. Ground cover is equally critical; techniques such as cover cropping with legumes not only shield soil from direct impact but also fix atmospheric nitrogen, naturally replenishing nutrient levels without synthetic addition. In systems that incorporate contour features or vegetated strips, the farm can function as a small-scale hydrological regulator, converting short bursts of rainfall into moisture that remains available to crops over longer periods.

E

Pest and disease management illustrates the agroecological preference for prevention over eradication. Rather than treating insects as enemies to be eliminated chemically, agroecology emphasises biological control agents and the habitat conditions that sustain them. Non-crop vegetation, such as hedgerows and wildflower margins, provides essential refuge for beneficial organisms: parasitic wasps can regulate caterpillar populations, while predatory beetles consume eggs and larvae. Crop rotation interrupts pest life cycles, while mixed planting reduces the probability that a pathogen spreads rapidly across uniform host tissue. The logic is probabilistic and ecological: by increasing diversity and reducing continuity, the system becomes harder for pests to exploit at scale. However, this approach requires careful monitoring because biological control is sensitive to timing, weather, and local species composition; it is effective not as a single intervention, but as a maintained balance.

F

Despite these theoretical advantages, adoption is constrained by barriers that are simultaneously economic, epistemological, and market-based. Transition costs can be immediate while benefits are delayed: yields may dip during system establishment, labour demands can rise, and investments in perennial plantings or new equipment may be



required. Knowledge barriers are equally significant because agroecological outcomes are context-dependent; techniques that work in one soil–climate regime can fail elsewhere, and standardised instructions may be unreliable. Market structure can intensify the problem. Supply chains built for uniformity and volume often penalise diversity, making it difficult to sell mixed outputs or to secure stable contracts. Where buyers reward cosmetic standardisation, farmers may face a choice between ecological diversification and commercial acceptance, which helps explain why many transitions occur gradually through “entry” changes rather than full redesign.

G

Whether agroecology scales, therefore, depends on policy, measurement, and institutional support as much as on field practices. A major difficulty is that many benefits resemble ecosystem services—pollination support, biodiversity, long-term soil carbon, water regulation—which are valuable but hard to quantify consistently. This measurement problem complicates certification and payment schemes, and it can allow narrow metrics to crowd out broader ecological performance. Policy design can either reinforce monocultures—through subsidies tied to acreage or insurance products calibrated to input-heavy systems—or reduce risk through transition grants, technical support, and investment in regionally appropriate research. Many advocates describe agroecology as a paradigm shift: it redefines productivity to include stability, equity, and long-run resource integrity, rather than treating yield alone as the only criterion. In that sense, agroecology is less a niche alternative than a dispute about what agriculture should optimise for in an era of climate volatility and ecological constraint.

Questions 14–19

Which paragraph contains the following information?

14 a contrast between dependence on synthetic inputs and an approach based on biological relationships.

15 an explanation of why cost savings may not be straightforward even if fewer external inputs are purchased.

16 a reference to arranging species so that diversity works through interaction effects across space and seasons.

17 an account of how organic matter changes the physical handling of rainfall and reduces erosion pressure.

18 mention of predators or parasites being supported as part of pest prevention rather than eradication.



19 a discussion of difficulties in measuring ecosystem services for certification or payment schemes.

Questions 20–22

Look at the following benefits and the list below. Choose the correct letter, **A, B, C, or D**.

20 spreading economic exposure so that one crop failure is less likely to become total loss.

21 replenishing soil nutrients naturally by growing legumes as protective ground cover.

22 creating refuge areas that support organisms which attack crop pests.

List of Practices

A Polyculture

B Agroforestry

C Cover cropping

D Hedgerows

Questions 23–26

Complete the sentences below. Choose **ONE WORD ONLY** from the text for each answer.

23 Agroecology rejects a approach in which yields depend largely on external inputs.

24 Rather than short-term maximisation, agroecology is often discussed in terms of

25 Farmers may face immediate costs during the to an agroecological system.

26 Supply chains designed for uniformity and may make mixed farm outputs difficult to sell.

Answer Key

14. A

15. B

16. C

17. D

18. E



19. G

20. A

21. C

22. D

23. monocultural

24. resilience

25. transition

26. volume