

5.4 Impacts of Agricultural Practices

Name: _____ Class: _____ Date: _____

Total: 9 marks

KEY WORDS eutrophication 富营养化 • tilling 耕作 • erosion 侵蚀 • methane 甲烷

Objective

Build the skills to answer exam questions on **impacts of agricultural practices**.

You must be able to:

- describe impacts of **tilling** 耕作, fertilizer, and confined animal feeding
- link practices to erosion, runoff, and pollution
- suggest mitigation

1 Worked examples

Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

■ Tilling

Tilling (plowing) loosens soil for planting but **exposes** it to wind and water, increasing **erosion** and releasing stored carbon.

■ Fertilizer and runoff

Fertilizers boost yields but excess washes off as **runoff**, adding nutrients to water and causing **eutrophication**.

■ Confined animal feeding (CAFOs)

Concentrated livestock operations produce huge amounts of **manure/waste**, which can pollute water with nutrients and pathogens, and release methane.

■ Mitigation

- **No-till** or reduced tilling to cut erosion.
- **Buffer strips** and precise fertilizer use to cut runoff.
- Proper **manure management**.

2 Practice

Now apply the methods above.

2.1 How does tilling increase erosion? [1]

2.2 What water problem does fertilizer runoff cause? [1]

2.3 State one way to reduce fertilizer runoff. [1]

3 Exam-style questions

3.1 Excess fertilizer washing into a lake most directly causes [1]

- **A** erosion
 - **B** eutrophication
 - **C** drought
 - **D** deforestation
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3.2 A farm tills its soil and applies heavy fertilizer near a river.

(a) Explain two impacts on the environment. [2]

(b) Suggest one practice to reduce these impacts. [1]

3.3 Explain why concentrated animal feeding operations (CAFOs) are a water-pollution concern. [2]

Solutions

2.1 It exposes and loosens the soil, so wind and water remove it more easily.

2.2 Eutrophication (nutrient pollution / algal blooms).

2.3 Any one: buffer strips, precise/reduced fertilizer, no-till.

3.1 B — eutrophication.

3.2 (a) Any two: tilling causes soil erosion; fertilizer runoff causes eutrophication; loss of soil carbon. (b) Any one: no-till, buffer strips, reduced fertilizer.

3.3 They concentrate large amounts of animal waste in one place; if it runs off it adds nutrients and pathogens to water, causing eutrophication and disease risk.