

Exercise walk-through

The Green Revolution ■ 5.3

eXercise

You must be able to

- describe the **Green Revolution** 绿色革命 and its methods
- state its benefits and costs
- link it to fertilizer, irrigation, and monoculture

Method — What it was

The **Green Revolution** greatly increased crop yields using **high-yield seeds**, **synthetic fertilizers**, **pesticides**, **irrigation**, and **mechanization**.

Method — Benefits

It **fed billions** and reduced famine by producing much more food per area.

Method — Costs

- **Soil degradation** and erosion from intensive farming.
- **Water pollution** from fertilizer/pesticide runoff.
- **High energy and water use.**
- Loss of crop diversity through **monoculture** (growing one crop).

Method — Monoculture risk

Monoculture raises efficiency but makes crops vulnerable — a single pest or disease can destroy the whole field, and it depletes specific soil nutrients.

Practice 2.1 ■ 2 marks

Name two methods of the Green Revolution.

Solution 2.1

Method: What it was

Worked steps

Any two: high-yield seeds, synthetic fertilizers, pesticides, irrigation, mechanization

B1 **B1**.

Practice 2.2 ■ 1 mark

State one benefit of the Green Revolution.

Solution 2.2

Method: What it was

Worked steps

It greatly increased food production / reduced famine **B1**.

Practice 2.3 ■ 1 mark

What is monoculture?

Solution 2.3

Worked steps

Growing a single crop over a large area **B1**.

Exam-style 3.1 ■ 1 mark

A drawback of monoculture is that a single pest or disease can

- A** improve the harvest
- B** destroy the entire crop
- C** increase diversity
- D** enrich the soil

Solution 3.1

Method: Monoculture risk

A improve the harvest

B destroy the entire crop



C increase diversity

D enrich the soil

Worked steps

B — destroy the entire crop.

Exam-style 3.2 ■ 2 marks

A country adopts Green Revolution farming.

- (a) State one benefit and one environmental cost.
- (b) Explain why fertilizer use can harm nearby waterways.

Solution 3.2

Worked steps

(a) Benefit: much more food; cost: any one of soil degradation, water pollution, high water/energy use, loss of diversity **B1** **B1**. (b) Excess fertilizer runs off into water, adding nutrients that cause algal blooms and eutrophication **M1** **A1**.

Exam-style 3.3 ■ 2 marks

Explain why monoculture increases the risk of crop failure.

Solution 3.3

Worked steps

With genetically similar plants over a large area, one pest or disease that can attack it can spread and wipe out the whole crop **M1** **A1**.