

Exercise walk-through

Integrated Pest Management ■ 5.14

eXercise

You must be able to

- describe **integrated pest management** 综合虫害治理
- combine biological, mechanical, and limited chemical control
- explain why IPM reduces pesticide problems

Method — What IPM is

Integrated pest management (IPM) combines several methods to control pests with **minimal pesticide** use, keeping pests below a damaging level rather than eliminating them.

Method — The tools

- **Biological** — natural predators.
- **Mechanical/physical** — traps, barriers, hand-removal.
- **Cultural** — crop rotation, resistant varieties.
- **Chemical** — pesticides only as a **last resort**, sparingly.

Method — Why it works better

Using less chemical reduces **resistance**, protects non-target species, and lowers pollution — avoiding the pesticide treadmill.

Method — A worked example

A farmer rotates crops, releases ladybugs to eat aphids, and only sprays a small amount if pests still exceed a threshold — that is IPM.

Practice 2.1 ■ 1 mark

What is the goal of IPM regarding pesticide use?

Solution 2.1

Worked steps

To minimize pesticide use (use chemicals only as a last resort) **B1**.

Practice 2.2 ■ 2 marks

Name two non-chemical IPM methods.

Solution 2.2

Worked steps

Any two: biological control, traps/barriers, crop rotation, resistant varieties **B1** **B1**.

Practice 2.3 ■ 1 mark

When are chemicals used in IPM?

Solution 2.3

Worked steps

Only as a last resort, sparingly, when pests exceed a threshold **B1**.

Exam-style 3.1 ■ 1 mark

In IPM, chemical pesticides are used

- A** first and heavily
- B** as a last resort, sparingly
- C** never
- D** to eliminate every pest

Solution 3.1

Method: The tools

- A first and heavily
- B as a last resort, sparingly 
- C never
- D to eliminate every pest

Worked steps

B — as a last resort, sparingly.

Exam-style 3.2 ■ 2 marks

A farm switches from routine spraying to IPM.

- (a) Describe two methods the farm might use.
- (b) Explain why IPM reduces pesticide resistance.

Solution 3.2

Method: Why it works better

Worked steps

(a) Any two: release natural predators, use traps/barriers, rotate crops, plant resistant varieties **B1 B1**. (b) Less pesticide use means less selection pressure on pests, so resistance develops more slowly **M1 A1**.

Exam-style 3.3 ■ 2 marks

Explain why IPM aims to keep pests below a threshold rather than eliminate them.

Solution 3.3

Method: What IPM is

Worked steps

Eliminating pests entirely is costly and drives resistance; keeping them below a damaging threshold protects the crop while using far fewer chemicals [M1](#) [A1](#).