BIOLOGY YEAR 12 - MODULE 5 - LESSON 5

Manipulating Reproduction in Agriculture

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

Modern agriculture does not simply wait for reproduction to happen. Farmers and breeders deliberately control which plants are pollinated, which animals mate, when semen is used, and even which embryos are transferred. These choices can increase productivity, but they also create biological and ethical trade-offs.

- How selective breeding manipulates inherited traits.
- Why agriculture benefits from greater productivity, uniformity and sometimes disease resistance.

2. Success Criteria

By the end, you should be able to:

- How selective breeding manipulates inherited traits.
- How artificial insemination, controlled mating and embryo transfer are used in animals.
- How controlled pollination is used in plant breeding.

3. Key Terms

Selective breeding
Choosing parents with desirable characteristics so those traits are more likely to appear in offspring.

Artificial insemination
Introducing semen into the female reproductive tract without natural mating.

Controlled mating
Managing which animals reproduce together to influence inherited traits.

Controlled pollination
Deliberately transferring pollen between selected plants to control inheritance.

Embryo transfer
Placing an embryo from one female into another female for development.

Gene pool
The total variety of alleles present in a population.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "How selective breeding manipulates inherited traits.". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "How artificial insemination, controlled mating and embryo transfer are used in animals.". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Manipulating Reproduction in Agriculture: "How controlled pollination is used in plant breeding.".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Manipulating Reproduction in Agriculture but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Manipulating Reproduction in Agriculture?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Manipulating Reproduction in Agriculture?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: How selective breeding manipulates inherited traits.

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How artificial insemination, controlled mating and embryo transfer are used in animals.

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: How controlled pollination is used in plant breeding.

BAND 5 4 MARKS

One thing I still need help with: