

2024 Bi H1 Q21

Section: Sustainability and Interdependence

Topic: Field Trials

Question Summary:

A field trial compared crop yields under different treatments, but results showed a high degree of variation within each treatment. The question asks how the experimental design could be improved to reduce this variability.

Worked Solution:

- Field trials should control variables such as soil type, drainage, and light as far as possible.
- Randomisation reduces bias, and replication helps identify whether variation is due to treatment or natural differences.
- Increasing the number of replicates improves reliability by reducing the effect of random variation within treatments.

Therefore, increasing the number of replicates would improve the design.

Final Answer: **C** (Increase the number of replicates for each treatment).

Revision Tips:

- Reliability improves with replication and randomisation.
- Validity depends on controlling all relevant variables.

- Repeatability ensures results can be reproduced by others.