

2025 Bi H1 Q20

Section: Sustainability and Interdependence

Topic: Plant and Animal Breeding

Question Summary:

A field trial tested four cultivars of maize. The question asks which feature of the trial takes into account the **variability of yield within each cultivar**.

Worked Solution:

Consider the three listed features:

1. **Random allocation of treatments** – this reduces bias between plots but does **not** measure variability *within* a cultivar.
2. **Four cultivars used** – this increases the number of cultivars being compared but does not help assess variability *within* any one cultivar.
3. **A sufficient number of replicates** – replicates allow natural variation in yield within each cultivar to be measured. This is exactly what is meant by “taking into account variability within a cultivar”.

Therefore, only feature **3** addresses variability within cultivars.

Final Answer: B (3 only).

Revision Tips:

- **Replicates** are essential for measuring natural variation within treatments.
- **Randomisation** reduces bias but does not measure variability.
- **Using multiple cultivars** widens comparisons but does not address within-group variation.

- Field trial design hinges on: randomisation, replication, and standardisation of conditions.