

Genotype by Environment Interaction of Bean Characteristics in Arabica Coffee

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SUMMARY

This study is dealing with the effect of genotype by environment interactions on characteristics of Arabica coffee bean. The characteristics include normal bean as well as abnormal bean e.g. elephant bean, round bean (pea berry), triage bean and empty locule.

The experiments were conducted simultaneously at three estates in East Java, namely Malang Sari estate (+625 m asl., wet climate), Pasewaran estate (+750 m asl., dry climate), and Kalisat estate (+1200 m asl., dry climate). In each site, the experiment was arranged in Randomised Complete Block Design with 12 genotypes and 4 replications. The observation of bean characteristics was done at the second and third crops.

The results showed that the coffee bean characteristics were significantly different from a genotype to the other one. The highest normal bean percentage belonged to USDA 762 (87.9), and the lowest one belongs to S 1934 (52.7). In contrast, the highest percentage of elephant bean belongs to S 1934 (14.0), whereas the lowest one belonged to AB 7 (0.5) and USDA 762 (0.5).

Genotype by environment interactions observed were highly significant different for each bean characteristics. Bean abnormalities are predominantly affected by the different altitude location rather than different crop year. The higher altitude, the higher percentage of abnormal beans.