| Mathematical notation | Variance component name | Biological interpretation if multiple inbred lines are used in common garden (genetic variation removed within lines) | Biological interpretation if multiple wild-collected ecotypes are used in common garden (genetic variation not removed within ecotypes) |
|---|---|---|---|
| $V_G = SS_G = r \sum_{i=1}^{g} (\bar{y}_i - \bar{y})^2$ | Variation among genotypes | Reflects phenotypic variation due to genetic differences among inbred lines. Often interpreted as $V_G$ | Reflects phenotypic variation due to genetic differences among ecotypes. Not directly interpretable as $V_G$ |
| $V_{error} = SS_{Error} = \sum_{i=1}^{g} \sum_{k=1}^{r} (y_{ik} - \bar{y}_i)^2$ | Residual variation (Variation within genotypes) | Reflects phenotypic variation within inbred lines due to environmental noise. Often interpreted as $V_E$. | Reflects phenotypic variation within ecotypes due to environmental noise and genetic variation within ecotypes. Not interpreted as $V_E$ because it includes environmental noise and genetic variation (confounds them). |