

| Mathematical notation | Variance component name | Biological interpretation if multiple inbred lines are used in experiment (genetic variation removed within lines) | Biological interpretation if multiple wild-collected ecotypes are used in experiment (genetic variation not removed within ecotypes) |
|---|--|---|---|
| $V_G = SS_G = re \sum_{i=1}^g (\bar{y}_i - \bar{y})^2$ | Variation among phenotypic deviations due to genotypes | Reflects phenotypic variation due to genetic differences among inbred lines, averaged across environments. Often interpreted as V_G | Reflects phenotypic variation due to genetic differences among ecotypes, averaged across environments. Often interpreted as V_G |
| $V_E = SS_E = rg \sum_{j=1}^e (\bar{y}_j - \bar{y})^2$ | Variation among phenotypic deviations due to environments | Reflects phenotypic variation due to environmental differences among sites, averaged across genotypes. Often interpreted as V_E | Reflects phenotypic variation due to environmental differences among sites, averaged across genotypes. Often interpreted as V_E |
| $V_{GxE} = SS_{GE} = r \sum_{i=1}^g \sum_{j=1}^e (\bar{y}_{ij} - \bar{y}_i - \bar{y}_j + \bar{y})^2$ | Interaction between genotypic and environmental deviations on phenotypes | Reflects phenotypic variation due to the environmental phenotypic deviation not being equal across genotypes. Often interpreted as $V_{G \times E}$ | Reflects phenotypic variation due to the environmental phenotypic deviation not being equal across genotypes. Often interpreted as $V_{G \times E}$ |
| $V_{CovGE} = SS_{CovGE} = xr \sum_{i=1}^g \sum_{j=1}^e (\bar{y}_i - \bar{y})(\bar{y}_j - \bar{y}) I_{ij} $ | Covariance between genotypic and environmental influences on phenotypes | Not often included in model calculation. | Not often included in model calculation. |
| $V_{error} = SS_{Error} = \sum_{i=1}^g \sum_{j=1}^e \sum_{k=1}^r (y_{ijk} - \bar{y}_{ij})^2$ | Residual variation (Variation within groups) | Reflects phenotypic variation within inbred lines due to environmental noise. | Reflects phenotypic variation within ecotypes due to environmental noise and genetic variation within ecotypes. |