

Mixture Analysis Equations used in Genemarker HID 1.90

$$\text{Major Mx} = (A + B) / (A + B + C + D)$$

$$\text{Residual} = \Sigma (\text{observed} - \text{expected})^2$$

$$\text{Heterozygous Imbalance} \quad \text{HIM} = A/B$$

$$\text{Probability of Inclusion} \quad \text{PI} = (p_1 + p_2 + \dots + p_i)^2$$

$$\text{Combined PI} \quad \text{CPI} = (\text{PI}_1 \times \text{PI}_2 \times \dots \times \text{PI}_i)$$

$$\text{Probability of Exclusion} \quad \text{PE} = 1 - (p_1 + p_2 + \dots + p_i)^2$$

$$\text{Combined PE} \quad \text{CPE} = 1 - [(1 - \text{PE}_1) \times (1 - \text{PE}_2) \times \dots \times (1 - \text{PE}_i)]$$

$$\text{Likelihood Ratios} \quad p^2 \text{ for homozygous loci} \quad 2p_1p_2 \text{ for heterozygous loci}$$