

### ΔG or R is due to:

1. artificial selection among ADULTS of parent generation
2. natural differences in FERTILITY among individuals of PARENT generation
3. natural differences in VIABILITY among individuals of OFFSPRING generation

response to selection (R) = change in population mean due to selection

= mean phenotypic value of offspring generation — mean of whole parental generation before selection

measure of selection applied = selection differential = S = mean phenotypic value of individuals selected as parents

= expressed as a deviation from the population mean

### Selection

process in which certain individuals in a population are preferred to others for the production of the next generation

does **not** create new genes

AIM: to increase f (desirable genes)  
to decrease f (undesirable genes)

FORMS: on the basis of **phenotype**  
on the basis of **breeding value**

Basic on the basis of **breeding value**  
Effect:

changes the array of gene frequencies (although almost completely hidden)

→ can be observed through changes in the MEAN

How to compare **successive generations** at the same point in the life cycle of the individuals

### How to Describe Change:



