

8.1 Difference of and intensity of selection

Figure 8.1 shows a normal distribution of a quantitative trait. A limit of the selection can be defined according to the proportion being used for breeding.

S designates the difference between the population average and the mean value of the selected animals. If a specific group has been selected, its actual mean value is calculated and then S can be calculated. When a certain proportion of animals is used in breeding, the standardized difference in the selection can be seen in a table when using truncation selection. This difference is called **selection intensity**, as shown in Figure 8.1, it can be estimated as S/σ_p , σ_p being the phenotypic standard deviation.

Figure 8.1 also shows the connection between estimated breeding value and the simple formula for selection response $R = h^2 * S$, given in section 6.4, and its relation to the estimation of breeding value by means of its own phenotype, cf. section 7.2.

Below is a table of 'i' calculated on the basis of the proportion of animals selected for breeding.

Proportion of animals for breeding	Intensity i	Proportion of animals for breeding	Intensity i	Proportion of animals for breeding	Intensity i
1.00	0				
0.90	0,20	0.09	1,80	0.008	2,74
0.80	0,35	0.08	1,85	0.006	2,83
0.70	0,50	0.07	1,91	0.004	2,96
0.60	0,64	0.06	1,98	0.002	3,17
0.50	0,80	0.05	2,06	0.001	3,38
0.40	0,97	0.04	2,15	0.0008	3,43
0.30	1,14	0.03	2,27	0.0006	3,51
0.20	1,40	0.02	2,42	0.0004	3,61
0.10	1,76	0.01	2,67	0.0002	3,79

An example of the use of the table: If 30% of the animal is used for breeding, i is 1.14.

Figure 8.1. Shows a graphic interpretation of the selection difference (S), the selection intensity (i) and selection response (ΔG) by use of individual selection.

