Computing the mean liability μ_t from frequency q_t of trait:

$$\mu_t = -z_{[1-q_t]} \qquad z_{[1-q]} \text{ computed by } \textbf{qnorm(1-q)} \tag{1}$$

Computing the selection differential where p_t is the fraction saved that show the trait.

$$S_t = \frac{\varphi(\mu_t)}{q_t}\,\frac{p_t - q_t}{1 - q_t} \qquad \varphi(x) \text{ computed by } \textbf{dnorm(z)} \tag{2}$$

Computing the response to selection:

$$q_{t+1} = Pr(U > z_{[1-q_t]} - h^2 S_t) = 1 - Pr(U < z_{[1-q_t]} - h^2 S_t) \qquad Pr(U < x) \text{ computed by } \textbf{pnorm(z)} \tag{3}$$

Starting values

$$h^2 = 0.35, \quad q_0 = 0.10, \quad \text{select upper 25\%}$$

Generation one

$$\mu_0 = -z_{[1-q_t]} = -z_{[0.9]} = -1.281$$

$$p_0 = 10/25 = 0.4, \quad S_0 = \frac{\varphi(-1.281)}{0.10}\,\frac{0.4 - 0.10}{1 - 0.1} = 0.585$$

$$q_1 = 1 - Pr(U < 1.281 - 0.35 \cdot 0.585) = 1 - Pr(U < 1.07625) = 0.141$$

Generation two

$$\mu_1 = -z_{[1-q_t]} = -z_{[0.859]} = -1.0758$$

$$p_1 = 14.1/25 = 0.564, \quad S_1 = \frac{\varphi(-1.0758)}{0.141}\,\frac{0.546 - 0.141}{1 - 0.141} = 0.7479$$

$$q_2 = 1 - Pr(U < 1.0758 - 0.35 \cdot 0.7479) = 1 - Pr(U < 0.8140) = 0.208$$

Generation three

$$\mu_2 = -z_{[1-q_t]} = -z_{[0.792]} = -0.8134$$

$$p_2 = 14.1/25 = 0.832, \quad S_2 = \frac{\varphi(-0.8134)}{0.208}\,\frac{0.832 - 0.208}{1 - 0.208} = 1.0856$$

$$q_3 = 1 - Pr(U < 0.8134 - 0.35 \cdot 1.0856) = 1 - Pr(U < 0.43344) = 0.332$$

Summary

Generation	q_t	μ_t	p_t	S_t
0	0.100	-1.281	0.400	0.585
1	0.141	-1.076	0.564	0.748
2	0.208	-0.813	0.832	1.086
3	0.332			