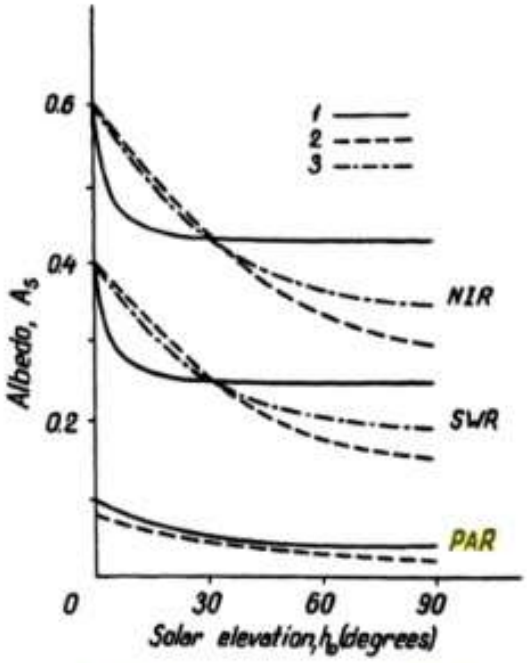

Fig. 112. Reflection coefficient (albedo) of a dense stand for direct PAR ($\omega_L = 0.15$), NIR ($\omega_L = 0.85$), and short-wave radiation ($\omega_L = 0.65$) as a function of solar elevation. Calculated from semiempirical equation (II.9.17) $L_0 \to \infty$.
1 – most horizontal leaves $\chi_L = 0.65$; 2 – most vertical leaves $\chi_L \approx 0.6$, 3 – *uniformly oriented leaves.*

Dependence of albedo on solar elevation and leaf orientation. Some general conclusions as to the dependence of albedo on solar elevation and leaf orientation can be drawn from Figure 112 which shows the dependence of the albedo A'_S of a dense stand on solar elevation as calculated from semiempirical formula (II.9.17).

1. The dependence of albedo on leaf orientation in PAR is insignificant and can be neglected. The dependence of albedo on solar elevation is weak and can also be neglected for approximate calculations.
2. In the NIR and short-wave radiation regions the effect of leaf orientation is substantial at high and low solar elevations. At high solar elevations the albedo of a dense stand A'_S increases as leaves become more horizontal and decreases as they become more vertical. The situation is reversed at low solar elevations.
3. In the solar elevation range $h_\odot = 20$–$40°$ albedo is practically independent of leaf orientation.
4. The dependence of albedo A'_S on solar elevation becomes less pronounced as leaves become more horizontal.
5. The region between curves 1 and 2 characterizes maximum variations of the albedo A'_S due to variations of the geometrical structure of real stand types. These variations are largest in the NIR and smallest in the PAR region.

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Ross, J., 2012. The radiation regime and architecture of plant stands. Springer Science & Business Media.